

Dr. D. M. Rathak
Asso. Prof.

GENERAL AGRICULTURE

for M - 9909015725

I.C.A.R. Examinations

(Like J.R.F., Ph.D., S.R.F., A.R.S. & MANAGE)

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Written by :-
Muniraj Singh Rathore

2016

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Dedicated To
My
Beloved Father
Late Sh. Kan Singh Rathore
&
My Loving Son Manku

Dr. D. M. Pathak
Asst. Prof.

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PREFACE

There is no text book covering comprehensively the content of all syllabus of general agriculture for M.Sc. & Ph.D. entrance examinations of Agricultural Universities. Students have to depend on the various books, monographs and periodicals to collect the information for various subjects offered in M.Sc. and Ph.D. entrance examinations for general agriculture. The present book is written to satisfy the various subjects syllabus which needs in M.Sc. & Ph.D. entrance examinations in a systematic manner.

I hope that this book has covered all the general agricultural questions in a systematic manner according to syllabus to the view of competitive examinations. I would like to express my heartfelt gratitude's to my best friend Amit (Ph.D, Soil science, I.A.R.I) , Dr. Ashok (Ph. D. Agronomy, I.A.R.I.), Dr. Deepak (Asst. Proff., Biotech), Dr. Manish Kumar Singh (Associate Prof. Agriculture Economics, Udai Pratap Autonomous College, Varanasi) & my best friend Nimisha Sharma (M.Sc. Agri), without whose whole hearted support and inspiration, this book would have never seen the light of the day.

Besides this I am also thankful to the students of I.A.R.I. &, IABM Bikaner, and Staff of Rajasthan Agriculture University,

Suggestions of students and teachers are always welcome.

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STATISTICAL DATA ABOUT AGRICULTURE PRODUCTION AND AREA

- Q. 1. Total food grain production in 2014-2015**
 Ans. 252.68 MT
- Q. 2. Total production of Rice in 2014-15**
 Ans. 104.80 MT
- Q. 3. Total production of Wheat in 2014-15**
 Ans. 88.94 MT
- Q. 4. Total production of Pulses in 2014-15**
 Ans. 17.20 MT
- Q. 5. Total cereals Production in 2014-15**
 Ans. 235.49 MT
- Q. 6. Total Kharif food grains production in 2014-15**
 Ans. 126.31 MT
- Q. 7. Total Rabi food grains production in 2014-15**
 Ans. 126.38 MT
- Q. 8. Total targeted Kharif food grains production in 2015-16**
 Ans. 131.32 MT
- Q. 9. Total targeted Rabi food grains production in 2015-16**
 Ans. 132.78 MT
- Q. 10. Total targeted food grains production in 2015-16**
 Ans. 264.10 MT
- Q. 11. Total Oil seed production in 2014-2015**
 Ans. 26.67 MT
- Q. 12. Total Cotton production in 2014-2015**
 Ans. 35.47 Million Bales
- Q. 13. Total Jute production in 2014-15**
 Ans. 10.93 Million Bales

- Q. 14. Total Sugarcane production 2014-15**
Ans. 359.33 MT
- Q. 15. Average yield per/ha of Rice in 2014**
Ans. 2416 kg./ha.
- Q. 16. Average yield per/ha of Wheat in 2014**
Ans. 3145 kg./ha.
- Q. 17. Average yield per/ha of total pulses in 2014**
Ans. 764 kg./ha.
- Q. 18. Average yield kg./ha of Maize in 2014**
Ans. 2676 kg./ha
- Q. 19. Average yield kg./ha of Cotton in 2014**
Ans. 510 kg./ha
- Q. 20. Average yield kg./ha of Sugarcane in 2014**
Ans. 70522 kg./ha
- Q. 21. Average yield kg./ha of Gram in 2014**
Ans. 960 kg./ha
- Q. 22. Average yield kg./ha of Ground nut in 2014**
Ans. 1764 kg./ha
- Q. 23. Average yield kg./ha of total oil seeds in 2014**
Ans. 1168 kg./ha
- Q. 24. Average yield kg./ha of total good grains in 2014**
Ans. 2120 kg./ha
- Q. 25. Average yield kg./ha of Rabi good grains in 2014**
Ans. 2435 kg./ha
- Q. 26. Average yield kg./ha of Kharif good grains in 2014**
Ans. 1864 kg./ha
- Q. 27. Gross area under Rice in 2014**
Ans. 44.13 M. ha.

- Q. 28. Gross area under Wheat in 2014**
Ans. 30.47 M. ha.
- Q. 29. Gross area under Ground nut in 2014**
Ans. 5.05 M. ha.
- Q. 30. Gross area under cotton in 2014**
Ans. 11.96 M. ha.
- Q. 31. Gross area under Sugarcane in 2014**
Ans. 4.99 M. ha.
- Q. 32. Gross area under Jute in 2014**
Ans. 0.756 M. ha.
- Q. 33. Gross area under total cereals in 2014**
Ans. 99.82 M. ha.
- Q. 34. Gross area under total pulses in 2014**
Ans. 28.05 M. ha.
- Q. 35. Gross area under Rabi season in 2014**
Ans. 55.99 M. ha.
- Q. 36. Gross area under Kharif season in 2014**
Ans. 69.05 M. ha.
- Q. 37. Gross area under total Food grains in 2014**
Ans. 125.04 M. ha.
- Q. 38. Area covered under organic manure in India in 2014**
Ans. 458.83 lac.ha.
- Q. 39. Area covered under Green manure in India in 2014**
Ans. 12.34 lac. ha.
- Q. 40. All India production of Organic manure in 2014**
Ans. 2294.15 Lac Tones
- Q. 41. State having highest production of green manure in 2014**
Ans. Karnataka

Q. 42. State having highest Area under green manure in 2014

Ans. Karnataka

Q. 43. Which country is World leader in wheat production

Ans. China

Q. 44. Which country is World leader in Rice production

Ans. China

Q. 45. Which country is World leader in Pulses production

Ans. India

Q. 46. Which country is World leader in Maize production

Ans. USA

Q. 47. Which country is World leader in total cereals production

Ans. 1st China & 2nd USA

Q. 48. Which country is World leader in Ground nut production

Ans. China

Q. 49. Which country is World leader in Rape seed production

Ans. 1st Canada 2nd China

Q. 50. Which country is World leader in Vegetables production

Ans. China

Q. 51. Which country is World leader in Fruit production

Ans. 1st China and 2nd India.

Q. 52. Which country is World leader in Potato production

Ans. China

Q. 53. Which country is World leader in Onion (Dry) production

Ans. China

Q. 54. Which country is World leader in Sugarcane production

Ans. Brazil

Q. 55. Which country is World leader in Tea production

Ans. China

Q. 56. Which country is World leader in Coffee (Green) production

Ans. Brazil

Q. 57. Which country is World leader in Jute & Fiber production

Ans. India

Q. 58. Which country is World leader in Seed Cotton production

Ans. China

Q. 59. Which country is World leader in Tobacco leaves production

Ans. 1st China & 2nd India

Q. 60. Which country is World leader in Rubber production

Ans. Malaysia

Q. 61. India's Rank in world in Wheat production

Ans. Second

Q. 62. India's Rank in world in Rice production

Ans. Second

Q. 63. India's Rank in world in total cereals production

Ans. Third

Q. 64. India's Rank in world in Ground nut production

Ans. Second

Q. 65. India's Rank in world in Rape seed production

Ans. Third

- Q. 66. India's Rank in world in Vegetables production
Ans. Second
- Q. 67. India's Rank in world in Fruit production
Ans. Second
- Q. 68. India's Rank in world in Potato production
Ans. Second
- Q. 69. India's Rank in world in Onion (Dry) production
Ans. Second
- Q. 70. India's Rank in world in Sugarcane production
Ans. Second
- Q. 71. India's Rank in world in Tea production
Ans. Second
- Q. 72. India's Rank in world in Coffee (Green) production
Ans. Seventh
- Q. 73. India's Rank in world in Seed Cotton (Green) production
Ans. Second
- Q. 74. India's Rank in world in Tobacco leaves production
Ans. Second
- Q. 75. India's Rank in world in total pulses production
Ans. First
- Q. 76. India's Rank in world in Coconut production
Ans. Third
- Q. 77. Largest producer of Olive in world
Ans. Spain
- Q. 78. Country having highest productivity in Cereals in 2014
Ans. Belgium

- Q. 79. Country having highest productivity in Pulses in 2014
Ans. Israel & Belgium
- Q. 80. Country having highest productivity in Paddy in 2014
Ans. Australia
- Q. 81. Country having highest productivity in Wheat in 2014
Ans. 1st U. K. and 2nd France
- Q. 82. Country having highest productivity in Maize 2014
Ans. USA
- Q. 83. Country having highest productivity in Soya bean 2014
Ans. Turkey
- Q. 84. Country having highest GDP
Ans. U.S.A
- Q. 85. Country having highest consumption of kilo Cal/ Capita/ Day
Ans. China
- Q. 86. India's consumption of kilo Cal/ Capita/ Day
Ans. 2455 K Cal. Capita/ Day
- Q. 87. India's Protein intake of per capita/ day in gms
Ans. 55.7 gm/ Day
- Q. 88. Country having lowest density people per Sq. km
Ans. Australia (3 person/sq/km)
- Q. 89. Country having highest people density per Sq./ km
Ans. Bangladesh (1188 person/sq/km)
- Q. 90. India's people density of per/sq/km. is
Ans. 416 Person/sq/km

Q. 91. Country leader in Rock phosphate and sulphur production

Ans. China

Q. 92. Country leader in consumption of N+P+K per capita of Agri population is

Ans. Canada

Q. 93. Country which is highest importer of N+P+K is

Ans. U.S.A.

Q. 94. Country which is highest exporter of N+P+K is

Ans. Russian Fedn.

Q. 95. Country leader in Urea production

Ans. China

Q. 96. India's rank in Urea production

Ans. 2nd rank

Q. 97. Country leader in DAP production

Ans. China

Q. 98. India's rank in DAP production

Ans. 3rd rank

Q. 99. Country leader in Nitrogen & Phosphate Consumption

Ans. China

Q. 100. Country leader in Potash Consumption

Ans. China

Q. 101. India's rank in Nitrogen Consumption

Ans. 2nd rank

Q. 102. India's rank in Phosphate Consumption

Ans. 2nd rank

Q. 103. India's rank in Potash Consumption

Ans. 4th rank

Q. 104. Country leader in N+P+K Consumption

Ans. China

Q. 105. India's rank in N+P+K consumption

Ans. 2nd rank

Q. 106. State having highest area under Rice production in 2014

Ans. U.P. & 2nd W. Bengal

Q. 107. State having highest area under wheat Production in 2014

Ans. U.P. & 2nd M.P.

Q. 108. State having highest area under Maize Production in 2014

Ans. Karnataka

Q. 109. State having highest area under Barley Production in 2014

Ans. Rajasthan

Q. 110. State having highest area under Pearl millet Production in 2014

Ans. Rajasthan and U.P.

Q. 111. State having highest area under total cereals Production in 2014

Ans. U.P.

Q. 112. State having highest area under Gram Production in 2014

Ans. M.P.

Q. 113. State having highest area under total Pigeon Pea Production in 2014

Ans. Maharashtra

Q. 114. State having highest area under Total pulses Production in 2014

Ans. M.P. & 2nd Rajasthan.

Q. 115. State having highest area under Ground nut Production in 2014

Ans. Gujarat > Andhra Pradesh

Q. 116. State having highest area under Soya bean Production in 2014

Ans. M.P. > Maharastra

Q. 117. State having highest area under Sugarcane Production in 2014

Ans. U.P. & 2nd Maharashtra

Q. 118. State having highest area under Cotton Production in 2014

Ans. Maharashtra & 2nd Gujarat

Q. 119. State having highest area under Jute Production in 2014

Ans. West Bengal

Q. 120. State having highest area under Total Food Grains Production in 2014

Ans. U.P. & 2nd Punjab

Q. 121. State having highest area under Mustard Production in 2014

Ans. Rajasthan

Q. 122. Which State was No. 1 for Rice production in 2014

Ans. West Bengal & 2nd U.P.

Q. 123. Which State was No. 1 for Wheat production in 2014

Ans. U.P.

Q. 124. Which State was No. 1 for Maize production in 2014

Ans. A.P. & 2nd Karnataka

Q. 125. Which State was No. 1 for Pearl millet production in 2014

Ans. Rajasthan & 2nd U.P.

Q. 126. Which State was No. 1 for total cereals production in 2014

Ans. U.P.

Q. 127. Which State was No. 1 for Gram production in 2014

Ans. M.P.

Q. 128. Which State was No. 1 for Pigeon Pea production in 2014

Ans. Maharashtra

Q. 129. Which State was No. 1 for Total pulses production in 2014

Ans. M.P.

Q. 130. Which State was No. 1 for Total food grains production in 2014

Ans. U.P.

Q. 131. Which State was No. 1 for Ground nut production in 2014.

Ans. Gujarat

Q. 132. Which State was No. 1 for Soya bean production in 2014

Ans. M.P.

Q. 133. Which State was No. 1 for Total oil seed production in 2014

Ans. Gujarat

Q. 134. Which State was No. 1 for Sugarcane production in 2014

Ans. U.P.

Q. 135. Which State was No. 1 for cotton production in 2014-

Ans. Gujarat

Q. 136. Which state was No.1 for Mustard production in 2014

Ans. Rajasthan

- Q. 137. Which state was No.2nd for Rice production in 2014**
Ans. U.P.
- Q. 138. Which state was No.2nd for Wheat production in 2014**
Ans. Punjab
- Q. 139. Which state was No.2nd for Gram production in 2014**
Ans. Rajasthan
- Q. 140. Which state was No.2nd for total pulses production in 2014**
Ans. Maharashtra
- Q. 141. Which state was No.2nd for total food grain production in 2014**
Ans. Punjab
- Q. 142. Which state was No.2nd for Soya bean production in 2014**
Ans. Maharashtra
- Q. 143. Which state was No.2nd for Ground nut production in 2014**
Ans. A.P.
- Q. 144. Which state was No.2nd for Sugarcane production in 2014**
Ans. Maharashtra
- Q. 145. Which state was No.2nd for Cotton production in 2014**
Ans. Maharashtra
- Q. 146. Which State was No. 2nd for Maize production in 2014**
Ans. Karnataka

- Q. 147. Which State was No. 2nd for Pearl millet production in 2014**
Ans. U.P.
- Q. 148. Which State was No. 2nd for total cereals crop production in 2014**
Ans. Punjab
- Q. 149. Which state has highest Average Yield Kg/ha. of food grains in 2014**
Ans. Punjab & 2nd U.P.
- Q. 150. Which state has highest Average Yield Kg/ha. of Rice in 2014**
Ans. Punjab
- Q. 151. Which state has highest Average Yield/ha of Wheat in 2014**
Ans. Punjab & 2nd Haryana
- Q. 152. Which state has highest Average Yield Kg/ha of Maize in 2014**
Ans. Tamil Nadu
- Q. 153. Which state has highest Average Yield Kg/ha of Gram in 2014**
Ans. A.P.
- Q. 154. Which state has highest Average Yield/ha of Ground Nut in 2014**
Ans. Gujarat & 2nd Tamil Nadu
- Q. 155. Which state has highest Average Yield Kg/ha of total pulses in 2013-2014**
Ans. Kerala & 2nd H.P
- Q. 156. Which state has highest Average Yield/ha of Soybean in 2014**
Ans. A.P.

- Q. 157. Which state has highest Average Yield/ha of Sugarcane in 2014**
 Ans. T. N. (107 tonnes/per/ha)
- Q. 158. Which state has highest Average Yield/ha of Cotton in 2014**
 Ans. Punjab & 2nd Haryana
- Q. 159. Total Agricultural Imports in 2014**
 Ans. 105149 Crore
- Q. 160. Which product contribute highest value in Agri imports**
 Ans. Vegetables oils
- Q. 161. Percentage share of Agri import's in nation imports in 2014**
 Ans. 3.87%
- Q. 162. Total food grain imports in 2014**
 Ans. 3084.34 Thousand Tonnes
- Q. 163. Total food grain exports in 2014**
 Ans. 21288.45 Thousand Tonnes
- Q. 164. Fresh fruits exports in 2014**
 Ans. 4364 Crore
- Q. 165. Fresh Vegetable exports in 2014**
 Ans. 5117 Crore
- Q. 166. Total Agri exports of India in 2014**
 Ans. 268469.05 Crore
- Q. 167. Which product contribute highest value in Agri Exports**
 Ans. Marine products & 2nd Basmati Rice
- Q. 168. Percentage share of Agri exports in nation exports in 2014**
 Ans. 14.17%

- Q. 169. Per capita net availability of cereals in India**
 Ans. 468.90 gm/day
- Q. 170. Per capita net availability of pulses in India**
 Ans. 41.90 gm/day
- Q. 171. Per capita availability of total food grains in India**
 Ans. 510.8 gm/day
- Q. 172. Per capita availability of milk in India**
 Ans. 322 gm/day/person
- Q. 173. State having highest Per capita availability of milk in India**
 Ans. Punjab 990 gm/day
- Q. 174. India's rank in milk production**
 Ans. 1st rank
- Q. 175. Average milk availability in world**
 Ans. 300ml/person/day
- Q. 176. Egg production of India**
 Ans. 78.48 Billion eggs
- Q. 177. Total -live stock population in India**
 Ans. 512.10 million
- Q. 178. Total poultry population in India**
 Ans. 729.12 million
- Q. 179. Availability of animal protein in Indian diet is**
 Ans. 10gm.person/day
- Q. 180. Percent increase in population from last year in 2013**
 Ans. 1.27%
- Q. 181. State having highest population in India**
 Ans. U.P.
- Q. 182. State having lowest population in India**
 Ans. Sikkim

- Q. 183. State having highest population below poverty line is
 Ans. Orissa
- Q. 184. Total Plan outlay of 12th five year plan
 Ans. 7669807 lac crore
- Q. 185. Plan outlay of Agri and allied sectors in 12th Five year plan
 Ans. 363273 lac crore
- Q. 186. Average growth rate of GDP in 10th Five Year Plan (2002-2007)
 Ans. 7.6%/annum
- Q. 187. Average growth rate of Agriculture GDP in 10th Five Year Plan (2002-2007)
 Ans. 2.3%
- Q. 188. Total layout plan (in value) for 11th Five year Plan (2007-2012)
 Ans. 3644718 Crore
- Q. 189. layout plan (in value) for 11th Five year Plan for Agri. (2007-2012)
 Ans. 136381 Crore
- Q. 190. Percent share of Agri. & allied sectors in 11th layout plan
 Ans. 3.7%
- Q. 191. Import of Urea in 2014-15
 Ans. 8.75 Million tones
- Q. 192. Import of DAP in 2014-15
 Ans. 3.85 Million tone's
- Q. 193. Import of MOP in 2014-15
 Ans. 4.20 Million tone's

- Q. 194. Total No. of sales point of fertilizer in 2014-15
 Ans. 305209 points
- Q. 195. Total consumption of total nutrients (N+P+K) in 2014-15
 Ans. 25.58 Million tone's
- Q. 196. Total consumption of Nitrogen in 2014-15
 Ans. 16.95 Million tone's
- Q. 197. Total consumption of Phosphorous in 2014-15
 Ans. 6.10 Million tone's
- Q. 198. Total consumption of Potash in 2014-15
 Ans. 2.53 Million tone's
- Q. 199. Total consumption of Urea in 2014-15
 Ans. 30.61 Million tone's
- Q. 200. Total consumption of DAP in 2014-15
 Ans. 7.63 Million tone's
- Q. 201. Total consumption of MOP in 2014-15
 Ans. 2.85 Million tone's
- Q. 202. Total consumption of SSP in 2014-15
 Ans. 3.99 Million tones
- Q. 203. State having highest consumption of NPK/Kg/Ha in 2014-15-
 Ans. Punjab & A.P.
- Q. 204. District having highest consumption of NPK volume in 2014-15
 Ans. Guntur (A.P.)
- Q. 205. N P K use ratio during 2014-15
 Ans. (N) 6.7 : (P) 2.4 : (K) 1
- Q. 206. Per hectare consumption of (N+P+K) in 2014-15
 Ans. 131.6 Kg/ha.

- Q. 207. MRP fixed for urea in 2014-15
Ans. Rs. 5360/tonne
- Q. 208. Budget estimated subsidy amount on all fertilizers in 2014-15-
Ans. 70967 Crore
- Q. 209. Nutrient based subsidy start in year-
Ans. 2011
- Q. 210. Projection plan for 12th Five year plan for N,P,K
Ans. 33516 MT
- Q. 211. What is Nutrient Base Subsidy (NBS) for Nitrogen in 2014-15
Ans. Rs. 20.87/kg.
- Q. 212. What is Nutrient Base Subsidy (NBS) for Phosphorous in 2014-15
Ans. Rs.18.67/kg.
- Q. 213. What is Nutrient Base Subsidy (NBS) for Potash in 2014-15
Ans. Rs.15.50/kg.
- Q. 214. What is Nutrient Base Subsidy (NBS) for Sulphur in 2014-15
Ans. Rs.1.67/kg.
- Q. 215. How many nutrients are included under nutrient based subsidy s
Ans. 4 (N, P K, S)
- Q. 216. Zinc deficiency percentage of India
Ans. 48.80%
- Q. 217. State soils having highest % of Zinc deficiency in India
Ans. Maharashtra

- Q. 218. Area Under drip irrigation in India
Ans. 305 M. ha.
- Q. 219. State first in highest area in drip irrigation
Ans. Maharashtra
- Q. 220. Highest Bio fertilizer production in state
Ans. Tamil Nadu
- Q. 221. Percent share of total consumption of electricity for agriculture purpose
Ans. 21%
- Q. 222. Minimum support price for Common paddy in 2015-16
Ans. 1410/Qtl
- Q. 223. MSP rupees increased /Qtl for Common paddy from last year
Ans. Rs. 50
- Q. 224. Minimum support price for grade A paddy in 2015-16
Ans. 1450/Qtl
- Q. 225. MSP rupees increased /Qtl for grade A paddy from last year
Ans. Rs. 50
- Q. 226. Minimum support price for Barley (Hybrid) in 2015-16-
Ans. 1570/Qtl
- Q. 227. Minimum support price for Pearl millet in 2015-16
Ans. 1275/Qtl
- Q. 228. Minimum support price for Maize in 2015-16
Ans. 1375/Qtl
- Q. 229. Minimum support price for G. Nut in 2015-16
Ans. 4030/Qtl

- Q. 230. Minimum support price for Soya bean (Yellow) in 2015-16
Ans. 2600/Qtl
- Q. 231. Minimum support price for sesamum in 2015-16
Ans. 4700/Qtl
- Q. 232. Minimum support price for wheat in 2015-16
Ans. 1525/Qtl
- Q. 233. MSP rupees increased /Qtl for Wheat from last year
Ans. Rs. 75
- Q. 234. Minimum support price for Cotton medium staple in 2015-16
Ans. 3800/Qtl
- Q. 235. Minimum support price for Cotton long staple in 2015-16
Ans. 4100/Qtl
- Q. 236. Minimum support price for Sugar cane in 2015-16
Ans. 230/Qtl
- Q. 237. Minimum support price for Rapeseed & Mustard in 2015-16
Ans. 3350/Qtl
- Q. 238. Minimum support price for Gram in 2015-16
Ans. 3425/Qtl
- Q. 239. Minimum support price for Jute in 2015-16
Ans. 2400/Qtl
- Q. 240. In which year MSP was announced by Govt.
Ans. 1970
- Q. 241. Which committee approve the MSP- *Minimum Support Price*
Ans. Cabinet committee on Economic Affairs
- Q. 242. Which committee recommend the MSP *Price*
Ans. CACP

- Q. 243. Chairman of Cabinet committee on Economic Affairs
Ans. Prime Minister
- Q. 244. No. of cereals covered under MSP
Ans. 7
- Q. 245. No. of pulses covered under MSP
Ans. 5
- Q. 246. No. of oil seeds covered under MSP
Ans. 8
- Q. 247. No. of fiber crops covered under MSP
Ans. 2
- Q. 248. Total No. of crops are in MSP regime
Ans. 26
- Q. 249. Subsidy for Paddy in BPL category in 2014-15
Ans. 2078.61 Rs./Qtl
- Q. 250. Subsidy for Paddy in AAY (Antyodaya Anna Yojana) category in 2014
Ans. 2343.61 Rs./Qtl
- Q. 251. Subsidy for Wheat in AAY (Antyodaya Anna Yojana) category in 2014
Ans. 1810.22 Rs./Qtl
- Q. 252. Ground level credit flow for agricultural and allied activities in 2014-15
Ans. 840643.00 Crore
- Q. 253. State which has highest cost of cultivation in paddy
Ans. A.P.
- Q. 254. State which has highest cost of cultivation in Wheat
Ans. Punjab
- Q. 255. State which has highest cost of cultivation in Cotton
Ans. A.P.

- Q. 256. State which has highest cost of cultivation in Sugar cane
Ans. Maharashtra
- Q. 257. Farmer covered under National Agriculture Insurance Scheme in 2013-14
Ans. 1.12 crore
- Q. 258. Total No. of Kisaan Credit cards issued in 2014
Ans. 10.10 crore
- Q. 259. Highest kisaan Credit card issued in state in 2014
Ans. A.P & 2nd U.P.
- Q. 260. All India Production of certified seeds in 2014-2015
Ans. 35.17 Lac ton
- Q. 261. Tractor industry sales (include Export) in India in 2014-15
Ans. 6.26 Lac
- Q. 262. State having highest electricity consumption for agri purpose
Ans. Maharashtra & 2nd A.P.
- Q. 263. Total GVA of India based on current price in 2014-2015
Ans. 11550240 Lac Crore
- Q. 264. Total GVA of India based on 2011-12 constant price in 2014-2015
Ans. 9827089 lac crore
- Q. 265. Percent contribution of agriculture in GVA (current price) in 2014-2015
Ans. 17%
- Q. 266. Percent growth in GVA by Agriculture in 2014-15
Ans. 0.2%

- Q. 267. Percent growth in GVA in FY 2014-15
Ans. 7.2%
- Q. 268. All India percentage of BPL population
Ans. 21.9%
- Q. 269. Total villages in Indian in 2012
Ans. 6.40 Lac
- Q. 270. State having highest no. of villages
Ans. U.P.
- Q. 271. Total plan out lay of 12th Five year plan 2012-17
Ans. 7669807 crore
- Q. 272. Percentage of Agri & allied sectors to total 12th five year plan out lay
Ans. 4.7 %
- Q. 273. Average size land holding size of India is
Ans. 1.4 hec.
- Q. 274. India's % share contribution in world production of total cereals
Ans. 11.43%
- Q. 275. India's percent share contribution in world production of wheat
Ans. 14.13%
- Q. 276. India's percent share contribution in world production of Rice
Ans. 21.47%
- Q. 277. India's percent share contribution in world production of total pulses
Ans. 22.90%
- Q. 278. India's percent share contribution in world production of Groundnut
Ans. 11.51%

- Q. 279. India's percent share contribution in world production of Rape seed
Ans. 10.21%
- Q. 280. India's percent share contribution in world production of Vegetables
Ans. 9.87%
- Q. 281. India's percent share contribution in world production of fruits
Ans. 11.17%
- Q. 282. India's percent share contribution in world production of Potato's
Ans. 11.19%
- Q. 283. India's percent share contribution in world production of Onion
Ans. 20.38%
- Q. 284. India's percent share contribution in world production of Sugar cane
Ans. 19.64%
- Q. 285. India's percent share contribution in world production of Tea
Ans. 20.54%
- Q. 286. India's percent share contribution in world production of Coffee
Ans. 3.41%
- Q. 287. India's percent share contribution in world production of Jute
Ans. 54.36%
- Q. 288. India's percent share contribution in world production of Seed cotton
Ans. 22.86%

- Q. 289. India's percent share contribution in world production of Tobacco
Ans. 11.31%
- Q. 290. State having highest area & production under Tea
Ans. Assam
- Q. 291. All India area under tea production is
Ans. 5.63 lac Ha.
- Q. 292. All India tea production of India in 2014
Ans. 12.07 lac k.g.
- Q. 293. Average yield/hect. of tea in India
Ans. 2143 Kg/hect
- Q. 294. State having highest area for coffee
Ans. Karnataka
- Q. 295. All India coffee production in 2014-15
Ans. 327 thousand tones.
- Q. 296. State having highest production & area of Rubber
Ans. Kerala
- Q. 297. All India rubber production in 2014-15
Ans. 645 Thousand tones.
- Q. 298. State having highest area under fruit 2014
Ans. Maharashtra
- Q. 299. State having highest production of fruits-2014
Ans. Maharashtra & 2nd A.P.
- Q. 300. State having highest area under vegetables 2014
Ans. West Bengal
- Q. 301. State having highest production of Vegetables 2014
Ans. West Bengal
- Q. 302. Total area under fruits in India in 2014
Ans. 7216 Thousand hect.

- Q. 303. Total production of fruit in 2014
Ans. 88977.1 Thousand tones
- Q. 304. Total area under Vegetables in India 2014
Ans. 9396 Thousand ha.
- Q. 305. Total production of vegetables in India in 2014
Ans. 162897 Thousand tones
- Q. 306. Fruit which covers highest area in India
Ans. Mangos
- Q. 307. Fruit which has highest production in India
Ans. Banana
- Q. 308. Vegetable which is highest in area in India
Ans. Potato
- Q. 309. Vegetable which is highest in production in India
Ans. Potato
- Q. 310. Fruit which is second in production in India
Ans. Mango
- Q. 311. Fruit having highest yield /ha
Ans. Papaya
- Q. 312. Fruit which is 3rd in production in India
Ans. Citrus
- Q. 313. Spice crop which covers highest area in spices in India in 2014
Ans. Cumin & 2nd Chilies
- Q. 314. Spice which has highest production in India
Ans. Chilies & 2nd Garlic
- Q. 315. Vegetable productivity ton/ha. in 2014
Ans. 17.3 tone/ha
- Q. 316. Fruit productivity ton/ha in 2014
Ans. 12.3 tone /ha

- Q. 317. Total fruit and vegetable production in 2014 in India
Ans. 251874 Thousand tonnes
- Q. 318. Area under mango cultivation in 2014
Ans. 2516 Thousand ha.
- Q. 319. Production of mango in 2014
Ans. 18431 Thousand tonnes.
- Q. 320. Mango productivity ton/ha in 2014
Ans. 7.3 tone/ha
- Q. 321. Area under Banana cultivation in 2014
Ans. 803 Thousand ha.
- Q. 322. Production of Banana in 2014
Ans. 29725 Thousand tonnes
- Q. 323. Banana productivity ton/ha. in 2014
Ans. 37.0 tone/ha
- Q. 324. Area under Citrus cultivation in 2014
Ans. 1078 Thousand ha.
- Q. 325. Production of citrus in 2014
Ans. 11147 Thousand tonnes
- Q. 326. Citrus productivity ton/ha in 2014
Ans. 10.30 tone/ha.
- Q. 327. Tomato production in India in 2014
Ans. 18736 Thousand tonne.
- Q. 328. Potato productivity tone/ha in Indian in 2014
Ans. 21.1 tone/ha
- Q. 329. Vegetable second in production in India in 2014
Ans. Onion
- Q. 330. Vegetable which is 3rd in production in India in 2014
Ans. Tomato

- Q. 331. Spices having highest production in India in 2014
Ans. Chilly
- Q. 332. Spices having highest yield/ha. In India in 2014
Ans. Garlic (5.4 T/Ha)
- Q. 333. India's rank in cauliflower production
Ans. First Rank
- Q. 334. India's rank in Pea production
Ans. First Rank
- Q. 335. India's rank in cabbage production
Ans. Third
- Q. 336. India's rank in Potato production
Ans. Second rank
- Q. 337. Country highest tractor density in world
Ans. Spain
- Q. 338. Country first in transgenic plants
Ans. USA
- Q. 339. India's rank in transgenic plants
Ans. Fourth
- Q. 340. Largest consumer of cashew
Ans. India
- Q. 341. Largest consumer of Tea
Ans. India
- Q. 342. Gross area sown in country
Ans. 194.39 M. ha
- Q. 343. Net area sown in country
Ans. 139.93 M. ha.
- Q. 344. Zone which having highest new sown area
Ans. West Zone

- Q. 345. State having highest net sown area
Ans. Rajasthan
- Q. 346. Gross area irrigated in India
Ans. 92.57 M. ha.
- Q. 347. Total cropped area of India
Ans. 194.39 M. ha
- Q. 348. State having highest total cropped area
Ans. U.P.
- Q. 349. Net irrigated area of India
Ans. 66.10 M. ha.
- Q. 350. Least irrigated area state of India
Ans. Mizoram
- Q. 351. Highest irrigation % of state
Ans. Punjab (99.2)
- Q. 352. Net area irrigated by canals
Ans. 15.62 M. ha.
- Q. 353. Net area irrigated by tube wells in India
Ans. 29.94 M. ha.
- Q. 354. Highest percent of irrigated area for the crop is
Ans. 1st Sugar Cane, 2nd wheat
- Q. 355. Total area under drip irrigation
Ans. 14.6 Lac. Ha
- Q. 356. Application efficiency of Drip irrigation is
Ans. 90%
- Q. 357. Highest source of irrigation in India is
Ans. Wells (52%)
- Q. 358. Cropping intensity of India
Ans. 138.9%

- ✓ Q. 359. **Geographical area of India is**
Ans. 328.72 M. ha.
- Q. 360. **Reporting area for land utilization statistics of India**
Ans. 305.83 M. ha.
- Q. 361. **Highest geographical area for the state**
Ans. Rajasthan
- Q. 362. **Highest net cultivated area for the state**
Ans. Rajasthan
- Q. 363. **Highest gross cultivated area for the state**
Ans. U.P.
- Q. 364. **Highest cropping intensity for the state**
Ans. Punjab (189%)
- Q. 365. **State having lowest cropping intensity**
Ans. Manipur & Mizoram (100.0%)
- Q. 366. **Highest net irrigated area for the state**
Ans. U.P.
- Q. 367. **State highest percentage of net irrigated area to net cultivated area**
Ans. Punjab (99.20%)
- Q. 368. **State highest net irrigated area irrigated through canal & tube well source**
Ans. U.P.
- Q. 369. **Crop having highest gross irrigated area**
Ans. Wheat
- Q. 370. **Total forest area**
Ans. 70.03 M. ha.
- Q. 371. **Percent area of forest in India**
Ans. 21.34%

- Q. 372. **Percent area for very dense forest in India is**
Ans. 2.61%
- ✓ Q. 373. **National Forest commission was set up in year**
Ans. 2002
- Q. 374. **Highest area under forest in state**
Ans. M.P. (7.64 M. Ha.)
- Q. 375. **State 2nd in forests area**
Ans. Arunachal Pradesh
- ✓ Q. 376. **Area under barren land of country**
Ans. 17.28 M. ha.
- ✓ Q. 377. **Area under permanent pasture & grazing lands**
Ans. 10.24 M. ha.
- ✓ Q. 378. **Area under non agricultural uses in India**
Ans. 26.45 M. ha.
- ✓ Q. 379. **Soil group having largest area in India**
Ans. Red Sandy (490 lac ha.)
- Q. 380. **Percent share of total cropped area for food grains**
Ans. 61.91%
- Q. 381. **Percent share of total cropped area for cereal crops**
Ans. 50.62%
- Q. 382. **Cereal having highest Percent share of total cropped area**
Ans. Paddy
- Q. 383. **Percent share of total cropped area for fruits & vegetables**
Ans. 5.05%
- Q. 384. **Percent share of total cropped area for fruits**
Ans. 2.22%

Q. 385. Fruit having highest Percent share of total cropped area

Ans. Mango

Q. 386. Percent share of total cropped area for Dry fruits

Ans. 0.28%

Q. 387. Percent share of total cropped area for Vegetables

Ans. 2.83%

Q. 388. Vegetable having highest Percent share of total cropped area

Ans. Potato

Q. 389. Percent share of total cropped area for Pulses

Ans. 11.30%

Q. 390. Pulse having highest Percent share of total cropped area

Ans. Gram

Q. 391. Percent share of total cropped area for Spices & condiments-

Ans. 1.70%

Q. 392. Spice having highest Percent share of total cropped area

Ans. Chilly

Q. 393. Percent share of total cropped area for Oil seed crops

Ans. 14.97%

Q. 394. Oil seed having highest Percent share of total cropped area

Ans. Ground nut

Q. 395. Percent share of total cropped area for fiber crops

Ans. 6.58%

Q. 396. Fiber having highest Percent share of total cropped area

Ans. Cotton

Q. 397. Percent share of total cropped area for fodder crops

Ans. 4.73%

Q. 398. Percent share of total cropped area for Drug, Narcotics & Plantation crops

Ans. 1.40%

Q. 399. Percent share of total cropped area for Rice

Ans. 21.99%

Q. 400. Percent share of total cropped area for wheat

Ans. 15.69%

Q. 401. Percent share of total cropped area for Sugarcane

Ans. 2.80%

Q. 402. Percent share of total cropped area for Mango

Ans. 0.75%

Q. 403. Percent share of total cropped area for Banana

Ans. 0.30%

Q. 404. Percent share of total cropped area for Potato

Ans. 0.85%

Q. 405. Percent share of total cropped area for Tobacco

Ans. 0.22%

Q. 406. Percent share of total cropped area for Tea

Ans. 0.31%

Q. 407. Percent share of total cropped area for Cotton

Ans. 6.11%

Q. 408. Percent share of total cropped area for Gram

Ans. 4.10%

- Q. 409. Average size of operational holdings by marginal farmers**
Ans. 0.38 ha.
- Q. 410. Average size of operational holdings by Small farmers**
Ans. 1.42 ha.
- Q. 411. Average size of operational holdings by medium farmers**
Ans. 5.76 ha.
- Q. 412. Average size of operational holdings by large farmers**
Ans. 17.37 ha.
- Q. 413. Average size of operational holdings by all groups farmers**
Ans. 1.16 ha.
- Q. 414. Highest average size land holding in state**
Ans. Nagaland (5.99 ha)
- Q. 415. Lowest average size land holding in state**
Ans. Kerala (0.22 ha)
- Q. 416. Rainfall amount for dry season**
Ans. 0-750 mm
- Q. 417. Rainfall amount for Medium season**
Ans. 750-2000 mm
- Q. 418. Rainfall amount for assured season**
Ans. > 2000 mm
- Q. 419. Highest % annual rainfall is received from**
Ans. S.W. monsoon (June to Sep.)
- Q. 420. Duration of Pre monsoon in India**
Ans. March- May

- Q. 421. Approx Percentage of annual rainfall by pre monsoon**
Ans. 10.40%
- Q. 422. Total percent amount received from South West monsoon**
Ans. 73.7%
- Q. 423. Duration of post monsoon**
Ans. Oct- Dec.
- Q. 424. Approx Percentage of annual rainfall by post monsoon**
Ans. 13.30%
- Q. 425. Duration of North East (Winter) monsoon-**
Ans. Jan- March
- Q. 426. Approx Percentage of annual rainfall by winter monsoon**
Ans. 2.60%
- Q. 427. Percent of normal rainfall in 2015**
Ans. 86%
- Q. 428. Total no. of reservoirs in 2015**
Ans. 91 Reservoirs
- Q. 429. Category defined of drought for 2009**
Ans. Severe drought
- Q. 430. Highest rainfall in state in 2013-14**
Ans. Coastal Karnataka (3264.8 mm)
- Q. 431. Average lowest rainfall occurs in**
Ans. Jaishmer (Rajasthan)
- Q. 432. Average annual rainfall volume is**
Ans. 1387.7 mm
- Q. 433. The generated run fall volume is**
Ans. 400m ha-m

- Q. 434. The generated run off volume is
Ans. 185mha-m
- Q. 435. Maximum average annual runoff occurs in
Ans. Brahmaputra Basin
- Q. 436. Annual soil loss due to erosion
Ans. 53334 M. T.
- Q. 437. Per capita water availability is
Ans. 2200 Cuc.m/person
- Q. 438. Percentage of fresh water on earth
Ans. 2.8%
- Q. 439. Conversion ratio of seed lac from stick lac
Ans. 66% of Stick Lac.
- Q. 440. Conversation ratio of Cashew kernels from cashew nuts
Ans. 25% of Cashew nuts
- Q. 441. Conversation of Rice(Cleaned) of paddy
Ans. 2/3 of Paddy production
- Q. 442. One candy is equal to-
Ans. 355 kgs or 782.42lbs
- Q. 443. One tonne copra (Coconut) is equal to
Ans. 6773 nuts
- Q. 444. Bale size of Jute
Ans. 180 kg.
- Q. 445. Conversion of Butter from mix milk
Ans. 6.9 %
- Q. 446. Conversion of Ghee from mixed milk is
Ans. 5.5%
- Q. 447. Conversation of Meal to soya bean seed crushed
Ans. 73%

- Q. 448. Volume of Oxygen in atmosphere is
Ans. 21%
- Q. 449. Longest river of India is
Ans. Ganga
- Q. 450. Major group of vegetable sown in Jayad
Ans. Cucurbits
- Q. 451. Hanumantha Rao Committee is associate with
Ans. Fertilizer
- Q. 452. History of Indian Agriculture was written by
Ans. M.S. Randhawa
- Q. 453. Fort of soya bean known as
Ans. M.P.
- Q. 454. Garden city is known as
Ans. Bangalore
- Q. 455. Square watermelon was discovered by the country
Ans. Japan
- Q. 456. Lowest forest area in India is
Ans. Western Rajasthan
- Q. 457. Arable land per head highest in country
Ans. Australia
- Q. 458. Non reporting area maximum is in
Ans. Jammu & Kashmir
- Q. 459. Highest water erosion in state
Ans. West Bengal
- Q. 460. Highest wind erosion in state is
Ans. Rajasthan
- Q. 461. State which is 2nd in geographical area is-
Ans. M.P.

- Q. 462. Highest alluvial soils found in state-
Ans. U.P.
- Q. 463. State which have India's first agriculture University
Ans. Uttarakhand
- Q. 464. First Agriculture University
Ans. G.B. Pant Agri. University, Pantnagar
- Q. 465. Agri. University which was named on 1st India's President-
Ans. Rajendra Agri. University, Bihar
- Q. 466. State which have highest saline soils
Ans. Gujarat
- Q. 467. State which has highest acidic soils
Ans. West Bengal
- Q. 468. State which has highest use of pesticides
Ans. Punjab
- Q. 469. State which has highest irrigation by canals
Ans. Punjab
- Q. 470. Total dry land area of India is
Ans. 34.5 M. ha.
- Q. 471. Percent arid area of total area of India is
Ans. 17%
- Q. 472. Percent of Humid area of total area of India is
Ans. 1.10 %
- Q. 473. The Indian Journal of Agriculture Sciences published by
Ans. ICAR
- Q. 474. Indian Farming Journal published by
Ans. ICAR

- Q. 475. King Baudouin International development Prize was given for
Ans. Green revolution
- Q. 476. No. of Agro ecological region classified by ICAR are
Ans. 8 Zone
- Q. 477. Agro ecological region classified by NBSS & LUP
Ans. 21 region
- Q. 478. Agro climatic zones classified by planning commission are-
Ans. 15 zones
- Q. 479. Agro climatic zones classified by NARP of ICAR are
Ans. 131
- Q. 480. Total State Agriculture Universities are in 2015
Ans. 63
- Q. 481. Percentage of work force engaged in agriculture in India is
Ans. 52.1%
- Q. 482. No. of Deemed Universities are
Ans. 4
- Q. 483. No. of National bureaus-
Ans. 6
- Q. 484. No of institutes under ICAR
Ans. 101
- Q. 485. No of Project Directorates under ICAR
Ans. 14
- Q. 486. NBAII is situated at
Ans. Bangalore
- Q. 487. Dr. G.S.Khush awarded by wolf prize for which crop
Ans. Rice

- Q. 488. No. of AICRPS are
Ans. 59
- Q. 489. National Bureau of Agriculturally Important Microorganism is situated at
Ans. Mau (U.P.)
- Q. 490. National Bureau of Fish Genetic Resources is situated at
Ans. Lucknow (U. P.)
- Q. 491. No. of Network projects under ICAR
Ans. 18 Projects
- Q. 492. No. of KVK's under ICAR are
Ans. 645 KVK
- Q. 493. Total no of national Bureaus are
Ans. 6 Bureaus
- Q. 494. NBAIA is situated at
Ans. Bangalore
- Q. 495. Number of NRC centers in India are
Ans. 14
- Q. 496. AICRP on Sesame and Niger is located at
Ans. Jabalpur (M.P.)
- Q. 497. AICRP Vegetables including NSP vegetable is situated at
Ans. Varanasi (U.P.)
- Q. 498. No. of Agricultural Technology Information Centers (ATIC) established under ICAR institutes and State Agricultural Universities.
Ans. 44 centers
- Q. 499. India's first NRC was for the crop
Ans. Ground nut

- Q. 500. India's first all India Co-ordinated research project was for the crop-
Ans. Maize
- Q. 501. First Agriculture minister of independent India was-
Ans. Rafi Ahmed Kidwai
- Q. 502. Present Director General of ICAR-
Ans. Dr. Trilochan Mohapatra
- Q. 503. The Department of Agricultural Research and Education (DARE) was established in the Ministry of Agriculture in -
Ans. Dec. 1973
- Q. 504. Chairman of National Commissions for Farmers-
Ans. Dr. M.S. Swaminathan
- Q. 505. NCF was constituted in year-
Ans. 18 Nov 2004
- Q. 506. Present Secretary, Department of Agricultural Research and Education (DARE)-
Ans. Dr. Trilochan Mohapatra
- Q. 507. Constitution of NCF (National Commission of Farmers) in-
Ans. 18 Nov. 2004
- Q. 508. First Deputy chairman of planning commission was-
Ans. Gulzari Lal Nanda
- Q. 509. Present Chairman & M.D. of F.C. I.-
Ans. Yogendra Tripathi
- Q. 510. Present Chairman of Tea Board of India-
Ans. Santosh Sarangi
- Q. 511. Set up of Indian Tea Board In year-
Ans. 1st April 1954

- Q. 512. **Head Quarter of Indian Tea Board is situated at-**
Ans. Kolkata
- Q. 513. **Director General of International Rice Research Institute**
Ans. Dr. Matthew Morell
- Q. 514. **Present Director Of IARI**
Ans. Dr. Ravindra Kaur
- Q. 515. **Head office of NABARD is situated at**
Ans. Mumbai
- Q. 516. **Directorate of Knowledge Management in Agriculture (DKMA) is situated at**
Ans. New Delhi
- Q. 517. **Directorate of Floricultural Research**
Ans. Pusa, New Delhi
- Q. 518. **Black revolution is related to**
Ans. Biofuel/Jatropha production
- Q. 519. **Percent contribution of forest area of India in world**
Ans. 1.5%
- Q. 520. **Percent contribution of livestock of India in world**
Ans. 15%
- Q. 521. **Set up of National Fisheries Development Board (NFDB)**
Ans. Sep 2006
- Q. 522. **Year known as International Rice year**
Ans. 2004
- Q. 523. **Year known as International Forest year**
Ans. 2011
- Q. 524. **Year known as International Horticulture year**
Ans. 2012

- Q. 525. **World food day is celebrated on -**
Ans. 16th Oct
- Q. 526. **World environment day is celebrated on -**
Ans. 5th June
- Q. 527. **World forest day is celebrated on -**
Ans. 21st March
- Q. 528. **World Metrological day is celebrated on-**
Ans. 23rd March
- Q. 529. **ISOPOM scheme launched in -**
Ans. 2004 (In 14 Major States)
- Q. 530. **National mission on Micro Irrigation (NMMI) started on**
Ans. 2010
- Q. 531. **All India Bt cotton area of total cotton area-**
Ans. 86% of cotton (8.4 Mha.)
- Q. 532. **The crop known as king of vegetable-**
Ans. potato
- Q. 533. **The crop known as monkey nut also-**
Ans. Ground nut
- Q. 534. **Red soils are dominated in state-**
Ans. Tamil Nadu
- Q. 535. **First soil testing lab was starting in year-**
Ans. 1955-56 (IARI)
- Q. 536. **The country who introduced first Zero tillage-**
Ans. USA
- Q. 537. **Most salt tolerant fruit cop is-**
Ans. Date palm
- Q. 538. **Production of off season vegetable is known as-**
Ans. Vegetable forcing

- Q. 539. National Botanical garden is situated at-
Ans. Lukhnow
- Q. 540. Agri scientist who awarded for Noble Prize in 1970-
Ans. Dr. N.E. Borlaug
- Q. 541. Present president of ICAR-
Ans. Union Minister of Agriculture, Dr. Radha Mohan Singh
- Q. 542. Cash prize given in ICAR N. Borlaug Award-
Ans. 10 Lac
- Q. 543. NBS policy for SSP was effective from the year-
Ans. 1st May-2010
- Q. 544. National committee on the use of Plastics in Agriculture (NCPA) was constituted in -
Ans. March, 1981
- Q. 545. First RBI Governor of India-
Ans. Osborne Smith (April 1935)
- Q. 546. Founder Chairman of NABARD-
Ans. M. Ramakrishnayy
- Q. 547. Largest cooperative society of India-
Ans. IFFCO
- Q. 548. Present Director of NDRI (Karnal) is-
Ans. Dr. A. K. Shrivastva
- Q. 549. National Institute of Nutrition is based at-
Ans. Hyderabad
- Q. 550. GCHERA World Agriculture Prize for the year 2015 given to-
Ans. R. Paul Singh

BASIC PRINCIPLES OF CROP PRODUCTION

- Q. 551. Father of Agronomy.
Ans. Peter Dearesenzi
- Q. 552. Who wrote Horse Hoeing Husbandry.
Ans. Jethro Tull
- Q. 553. Father of weed science.
Ans. Jethro Tull
- Q. 554. Jhum cultivation is mostly found in which part of India?
Ans. Eastern part
- Q. 555. Demerit of shifting cultivation is.
Ans. Soil loss
- Q. 556. Objective of sustainable Agriculture is.
Ans. Ecological balance
- Q. 556. Which pattern of planting has maximum plant population.
Ans. Cubodial pattern
- Q. 557. Farming which includes crop production and livestock.
Ans. Mixed farming (First done by La-Flitze in the year 1928)
- Q. 558. A system of growing the same crop on the same land year after year is known as.
Ans. Mono cropping
- Q. 559. Cultivation of such crops which have different natural habit and zero competition is known as.
Ans. Parallel cropping

Q. 560. The cropping system in which the yields of both crops are higher than of their pure crops on unit area basis is called as.

Ans. Synergetic cropping

Q. 561. Growing hard and thorny crops. (Mesta/Safflower) around the main crop.

Ans. Guard crops

Q. 562. Cultivation of two or more than two crops of different heights simultaneously on a certain piece of land in any certain period is called as.

Ans. Multistoried cropping

Q. 563. Cropping intensity will be always 100% in.

Ans. Monocropping

Q. 564. Peira cropping is mostly adopted in.

Ans. Bihar & West Bengal

Q. 565. Kind of cropping in which a line is left unsown in the regular row series.

Ans. Skip cropping

Q. 566. Utera cropping is mostly adopted in.

Ans. Madhya Pradesh

Q. 567. The farming system used to develop the mass (planet) according to the Earth's environment is called.

Ans. Terra farming

Q. 568. Formula of Harvest Index is.

$$\text{Ans. H.I.} = \frac{\text{Economic yield}}{\text{Biological yield}} \times 100$$

Q. 569. Cropping Intensity is given by

$$\text{Ans. C.I.} = \frac{\text{Total cropped area}}{\text{Total sown area}} \times 100$$

(Menegay proposed cropping intensity index in 1978)

Q. 570. Agro climatic Regional planning in India was initiated in which five year plan.

Ans. 7th Five year plan (1988)

Q. 571. Total agro climatic zones in India are.

Ans. 15 Zones

Q. 572. Cultivation of crops in areas where annual rainfall is less than 750m.m. is called as.

Ans. Dry Farming

Q. 573. Cultivation of crops in areas where annual rainfall is more than 750m.m. but less than 1150 mm is called as.

Ans. Dry land Farming

Q. 574. Means of cultivation of crops in regions where annual rainfall is more than 1150m.m. is called as.

Ans. Rain fed Farming

Q. 575. When annual rainfall is less than 75% of normal the situation will be called as.

Ans. Drought

Q. 576. If deficiency of rainfall is above 50% of the normal the situation will be called as.

Ans. Severe drought

Q. 577. Supplemental irrigation is known as.

Ans. Life saving irrigation

Q. 578. P.M.A. phenyl mercuric acetate is a type of anti transpirants.

Ans. Stomata closing type

Q. 579. Kaolin is a type of antitranspirants.

Ans. Reflecting type

- Q. 580.** Cycocel is a.
Ans. Growth retardants
- Q. 581.** The direction from which the winds are coming are called as.
Ans. Wind ward side
- Q. 582.** For the regular cultivation the land capability classes used are.
Ans. I, II & III Classes
- Q. 583.** Agronomic measures used to reduce erosion where slope is
Ans. Less than 2%
- Q. 584.** Bench terracing usually practiced on slopes ranging from.
Ans. 16-33%
- Q. 585.** Family of tobacco.
Ans. Solanaceae
- Q. 586.** Family of jute.
Ans. Tiliaceae
- Q. 587.** Family of sesame.
Ans. Pedoliaceae
- Q. 588.** Family of castor.
Ans. Euphorbiaceae
- Q. 589.** Which family of crops is more exhaustive.
Ans. Graminae
- Q. 590.** Tobacco is a.
Ans. Rabi crop
- Q. 591.** Origin of maize
Ans. Mexico
- Q. 592.** Origin of soyabean.
Ans. China

- Q. 593.** Origin of potato.
Ans. Peru (S. America)
- Q. 594.** Origin of tobacco
Ans. Mexico & Central America
- Q. 595.** Highest area of summer maize.
Ans. Bihar
- Q. 596.** Highest consumption of K fertilizer is in.
Ans. Maharashtra
- Q. 597.** Highest area of cereals in India.
Ans. 1. Rice 2. Wheat
- Q. 598.** Highest production of Cereal in world.
Ans. Wheat
- Q. 599.** De suckering is a process of a crop.
Ans. Tobacco.
- Q. 600.** Harvest Index is low in.
Ans. Pulses
- Q. 601.** Weight of 100 seeds is known as.
Ans. Seed Index
- Q. 602.** Weight of 1000 seeds is known as.
Ans. Test weight
- Q. 603.** Dockage is the.
Ans. Impurity percentage
- Q. 604.** Formula of Real value is.
Ans. $RV = \frac{\text{Purity \%} \times \text{Germination\%}}{100}$
- Q. 605.** The seed which is known as mother seed is.
Ans. Breeder seed
- Q. 606.** Cyperus rotandus is a.
Ans. Absolute weed

- Q. 607. State, where seed law are adopted.**
Ans. Karnataka
- Q. 608. The weed which was first biologically controlled.**
Ans. Lantana Camaera
- Q. 609. Trade name of Alachlor.**
Ans. Lasso
- Q. 610. Trade name of Butachlor**
Ans. Machete
- Q. 611. Trade name of Nitrofen.**
Ans. Toke
- Q. 612. Trade name of Fluchloralin.**
Ans. Basalin
- Q. 613. Trade name of Propanil.**
Ans. Stam F-34
- Q. 614. Trade name of Pendamethalin.**
Ans. Stomp
- Q. 615. Total root parasite.**
Ans. Orobanche
- Q. 616. Total stem parasite.**
Ans. Cuscuta
- Q. 617. Semi root parasite.**
Ans. Striga
- Q. 618. Semi stem parasite.**
Ans. Loranthus
- Q. 619. Orobanche is also known as.**
Ans. Broom rape
- Q. 620. Striga is also known as.**
Ans. Witch weed
- Q. 621. Host crops of orobanche.**
Ans. Tobacco, chili, brinjal, potato

- Q. 622. Host plants of striga.**
Ans. Sorghum, maize, sugarcane, sunflower
- Q. 623. Cuscuta is associated with.**
Ans. Lucern crop
- Q. 624. Horizontal flow of water in channel is called as.**
Ans. Seepage (JRF 2015)
- Q. 625. Vertical movement of water in soil known as.**
Ans. Percolation
- Q. 626. PF value was first time introduced by.**
Ans. Schofield
- Q. 627. Soil moisture tension was directly measured by.**
Ans. Tensiometer
- Q. 628. Tensiometer was first designed by**
Ans. Richards and Gardner (1936)
- Q. 629. Lysimeter is used for measurement of.**
Ans. Evapo - transpiration
- Q. 630. Parshall flume is used for measurement of.**
Ans. Water flow
- Q. 631. Flooding irrigation method commonly used for.**
Ans. Rice
- Q. 632. Fertilizer application through irrigation is known as.**
Ans. Fertigation
- Q. 633. Important cultural practice in rice field.**
Ans. Pudding
- Q. 634. Power tiller is most suitable for the cultivation of.**
Ans. Paddy
- Q. 635. Post harvest losses for cereals accounts for.**
Ans. 10%

- Q. 636.** Salation is a process of.
Ans. Wind erosion
- Q. 637.** Highly salt tolerant cereal crop is.
Ans. Barley
- Q. 638.** Irrigation efficiency of loam soil is.
Ans. 70%
- Q. 639.** In saline soil the method for irrigation used is
Ans. Flood method
- Q. 640.** Crops between the main crop are called as.
Ans. Inter crop
- Q. 641.** Sowing pattern used in dry land.
Ans. Broadcasting
- Q. 642.** Crop lodging was first adopted in which crop.
Ans. Sugarcane
- Q. 643.** Most efficient method of irrigation is.
Ans. Drip irrigation
- Q. 644.** Extensively grown pulse crop in India.
Ans. Chick pea
- Q. 645.** Relative humidity is measured by.
Ans. Psychrometer
- Q. 646.** Crops grown to conserve soil moisture are known as.
Ans. Mulch crops
- Q. 647.** Mat type nursery is related to crop
Ans. Paddy
- Q. 648.** Fertilizer (most concentrated) used for nutrient supply to crops is
Ans. Anhydrous Ammonia
- Q. 649.** Cultivation of two or more than two crops of different height done simultaneously
Ans. Multilevel cropping.

- Q. 650.** Annidation
Ans. Complementary reactions between inter crops.
- Q. 651.** Father of Indian Paleobotany
Ans. Birbal Sahni.
- Q. 652.** The practice of taking the second crop from previous one is known as
Ans. Ratooning
- Q. 653.** Competition Index was proposed by
Ans. Donald (1968)
- Q. 653.** Curing is associated with which crop
Ans. Tobacco & Tea
- Q. 654.** Threshing is associated with which crop
Ans. Sugarcane
- Q. 655.** Stripping is associated with which crop
Ans. Jute
- Q. 656.** Wrapping is associated with which crop
Ans. Sugarcane
- Q. 657.** Wind circulation in cyclone in Northern hemisphere is called as
Ans. Anticlockwise
- Q. 658.** Imaginary lines connecting points of equal amount of rainfall called as
Ans. Isohyets
- Q. 659.** Imaginary lines connecting points of equal atmospheric pressure is called as
Ans. Isobar
- Q. 660.** Imaginary lines connecting equal depth of rainfall is called as
Ans. Isopluvial

- Q. 661.** Imaginary lines connecting equal points of equal wind velocities called as
 Ans. Isotech
- Q. 662.** Rotavator is used for
 Ans. Primary & secondary cultivation
- Q. 663.** Chemical contains by Roundup herbicide
 Ans. Glyphosate
- Q. 664.** Roundup is registered product of which company
 Ans. Monsanto company
- Q.665.** Collective farming system has originated from
 Ans. South union
- Q.666.** The "miracle plant" which is useful for fuel, fodder and manure is
 Ans. *Leucaena leucocephala*
- Q.667.** Oldest tractor manufacturing company
 Ans. New Holland (1895)
- Q.668.** Crop which is used to make car fuel in Brazil
 Ans. Sugarcane
- Q.669.** First chemically manufactured fertilizer is
 Ans. ammonium sulphate
- Q.670.** Optimum temperature for crop production
 Ans. 15-20°C (MPPSC, 2011)
- Q.671.** Water use efficiency highest under which method
 Ans. Drip Irrigation (JRF 2013)
- Q. 672.** Net cultivated area of India
 Ans. 140.3 million hectares (JRF 2013)
- Q. 673.** What is Inter cropping
 Ans. Growing two or more crops simultaneously in alternate rows
- Q. 674.** What is Utera cropping
 Ans. Sowing of next seeds before harvesting of standing crop in order to utilize moisture efficiency under rainfed agro-ecosystems. Utera cropping is adopted in Rabi seasons only

CULTIVATION OF SOME IMPORTANT CROPS

1. Rice

- Q. 675.** Scientific name of rice.
 Ans. *Oryza sativa* $2n = 24$
- Q. 676.** Family of rice.
 Ans. Graminae
- Q. 677.** Origin of rice.
 Ans. South East Asia
- Q. 678.** Sowing time of Aus/Autumn rice.
 Ans. March-April
- Q. 679.** Sowing time of Aman rice.
 Ans. May-June
- Q. 680.** Sowing time of Boro rice.
 Ans. December-January
- Q. 681.** Aman rice also known as.
 Ans. Kharif/winter rice
- Q. 681a.** Optimum temperature for cultivation
 Ans. 30-35°C
- Q. 682.** Boro rice also known as.
 Ans. Summer rice
- Q. 683.** Lodging doesn't occur in.
 Ans. Japonica rice
- Q. 684.** Rice inflorescence is known as.
 Ans. Panicle (RAS 2008)
- Q. 684a.** Stem of rice is called
 Ans. Hull
- Q. 685.** Hull is combination of.
 Ans. Lemma + Palea together
- Q. 686.** SRI stands for
 Ans. System of Rice Intensification.
- Q. 687.** SRI concept
 Ans. Increasing productivity by changing management of plants, soil, water and nutrients.

- Q. 688.** SRI was first synthesized by
 Ans. Fr. Henri de Laulanie under drought conditions at Madagascar at 1983.
- Q. 689.** Yield increased by adopting SRI is
 Ans. 50 to 90%
- Q. 690.** Highest rice producing state in India.
 Ans. West Bengal
- Q. 691.** Test weight of basmati rice grain is.
 Ans. 21 gm.
- Q. 692.** Rice is a type of plant.
 Ans. Self pollinated & Short day plant
- Q. 693.** Cardinal temperature of rice is.
 Ans. 30-32°C
- Q. 694.** Hulling % of rice is.
 Ans. 70-75%
- Q. 695.** First developed rice variety.
 Ans. T.N.-1
- Q. 696.** Jagannath is the mutant variety of.
 Ans. T.N.-141
- Q. 697.** The World's first high yielding variety (dwarf) of rice that has been developed by IARI.
 Ans. Pusa Basmati-2
- Q. 698.** Maximum rice Exporter in the world is.
 Ans. Thailand
- Q. 699.** Highest productivity of rice in the world.
 Ans. Japan (58 q/ha)
- Q. 700.** Hybrid rice which is released by private organization.
 Ans. PHB-71
- Q. 701.** Most critical stage for water.
 Ans. Booting stage

- Q. 702.** Seedling ready for transplanting in Depog method.
 Ans. 12th day
- Q. 703.** Best Biofertilizer for rice.
 Ans. Azolla
- Q. 704.** Area required for rice nursery.
 Ans. 700-800 m² (.05 ha)
- Q. 705.** Fruit of rice is known as.
 Ans. Caryopsis
- Q. 706.** Widely used nitrogenous fertilizer in rice.
 Ans. Ammonium Sulphate
- Q. 707.** Most dominant weed sp. in rice.
 Ans. *Echinochloa* sp.
- Q. 708.** White eye of rice is due to.
 Ans. Fe deficiency
- Q. 709.** Killer diseases of rice are:
 Ans. 1. Bacterial blight, 2. Tungur virus.
- Q. 710.** The gas emitted from rice field is.
 Ans. Methane (MPPSC 2011)
- Q. 711.** Akiochi disease is due to.
 Ans. H₂S
- Q. 712.** Highest N losses in rice field is by.
 Ans. Denitrification
- Q. 713.** Paira & utera cropping system is closely related to.
 Ans. Rice
- Q. 714.** Puddler & puddling is related to.
 Ans. Rice
- Q. 715.** Hydrothermal treatment of rice grain before milling.
 Ans. Paraboiling

- Q. 716.** Parboiling of rice conserve the vitamin.
Ans. Vitamin - B₁₂
- Q. 717.** Seed rate in depog method for rice.
Ans. 3-4 kg/m²
- Q. 718.** Area required for seedling preparation in Depog method.
Ans. 25-30 m²
- Q. 719.** Miracle rice (first dwarf variety) of India is.
Ans. Jaya
- Q. 720.** Gene responsible for dwarfness in rice.
Ans. Dee-Gee-Woo-gene
- Q. 721.** Space for sowing of seedlings of rice.
Ans. 20 × 10cm
- Q. 722.** Khaira diseases of rice is due to
Ans. Zinc deficiency (AAO 2009)
- Q. 723.** Optimum pH of soil required for growing rice is
Ans. 4-6
- Q. 724.** Seed rate of hybrid rice is.
Ans. 6-10 Kg/ acre
- Q. 725.** First Super aromatic Basmati rice is
Ans. Pusa RH - 10
- Q. 726.** Saline tolerant rice variety is
Ans. SR 26 B
- Q. 727.** Vikramarya rice variety is resistant for
Ans. Tungro virus
- Q. 728.** Ajaya rice variety is resistant for
Ans. Bacterial Blight
- Q. 729.** Phalguna rice variety is resistant for
Ans. Gall midge

- Q. 730.** State known as "Bowl of Rice" is
Ans. Chhattisgarh
- Q. 731.** Vitamin rich in golden yellow rice is
Ans. Vitamin A
- Q.732.** Total districts of India in paddy growing
Ans. 564 districts
- Q.733.** The Bio herbicide used in rice cultivation is
Ans. Collego
- Q. 734.** Bronzing disease of rice is associated with high concentration of
Ans. Ferrous (JRF 2013)
- Q. 735.** Value of Albedo for rice crop is about
Ans. 12% (JRF 2013)
- Q. 736.** Harvest Index of Rice
Ans. 0-40
- Q. 737.** What percentage of world's dietary energy source is provided by rice?
Ans. 20 percent
- Q. 738.** From where does black rice obtain its color?
Ans. It obtains it from anthocyanins and tocopherols which contain antioxidants useful for human health.
- Q. 739.** Where are anthocyanins and gamma tocopherols located in black rice?
Ans. They are located in the inner portion of black rice
- Q. 740.** What do red and black rice provide?
Ans. The consumption of red and black rice reduces or retards the progression atherosclerotic plaque development, induced by dietary cholesterol, in mammals.
- Q.741.** What does white rice provide?
Ans. It is a good source of magnesium, phosphorus, manganese, selenium, iron, folic acid, thiamine and niacin
- Q.742.** Golden rice is genetically modified crop plant where the incorporated genes are meant for the biosynthesis of?
Ans. Beta Carotene

Q.743. Which country produces the largest quantity of rice in the world?

Ans. China

Q.744. What are the different varieties of rice?

Ans. Brown rice, black/purple rice, red rice, wehani rice and white rice.

Q.745. Green revolution in India has so far been the most successful in the case of?

Ans. Rice and Wheat

Q.746. Inter-racial hybridization programme between japonicas and indicas varieties of which among the following crops was initiated during 1950-54?

Ans. Rice

Q.747. Why using cooked rice for the next day can be toxic?

Ans. Cooked rice contains *Bacillus Cereus* spores which produce toxicity at a temperature of 4-60 degree Celsius.

2. Wheat

Q. 748. Botanical name of wheat is.

Ans. *Triticum aestivum* (Chromosome no. $2n = 42$)

Q. 749. Origin of wheat.

Ans. South West Asia (Turkey)

Q. 750. The state which has highest production and highest cultivated area

Ans. Uttar Pradesh (JRF 2006)

Q. 751. The state which has highest productivity.

Ans. Punjab

Q. 752. Marconi wheat is known as.

Ans. *Triticum durum*

Q. 753. Emmer wheat is known as.

Ans. *T. dicoccum*

Q. 754. Suitable late sown variety is.

Ans. Sonalika

Q. 755. Sowing time of wheat is.

Ans. 15 Nov. - 20 Nov.

Q. 756. Spacing of row to row.

Ans. 22.5cm.

Q. 757. Most critical stage for irrigation.

Ans. C.R.I. Stage (ARS 2009) (Ph.D 2009)

Q. 758. C.R.I. stage comes after days.

Ans. 21 D.A.S.

Q. 759. Gene responsible for dwarfness in wheat.

Ans. Norin 10

Q. 760. Important mimicry weed of wheat is.

Ans. *Phalaris minor*

Q. 761. Common bread wheat is known as.

Ans. *Triticum aestivum*

Q. 762. Flowering portion of wheat is called.

Ans. Ear/Head/Spike

Q. 763. Test weight of wheat is.

Ans. 40 gm.

Q. 764. Shelling percentage of wheat is.

Ans. 60%

Q. 765. *Triticum sphaerococcum* also known as.

Ans. Indian dwarf wheat/club wheat

Q. 766. Central zig zag axis of wheat grain is called.

Ans. Rachis

Q. 767. Triple gene dwarf varieties were released in the year.

Ans. 1970

- Q. 768.** If there are only three irrigation it will be applied-
- Ans. 1. C.R.I. stage (Crown Root Initiation)
2. Late jointing (hoot) stage
3. Milking stage
- Q. 769.** Seminal roots are.
- Ans. Temporary roots
- Q. 770.** Fruit type of wheat is (Grain).
- Ans. Caryopsis
- Q. 771.** First man made cereal is.
- Ans. Triticale
- Q. 772.** Triticale is a cross of.
- Ans. Wheat × Rye (PhD 1994)
- Q. 773.** Temperature for germination of wheat seed is.
- Ans. 20–25°C
- Q. 774.** Protein content in wheat.
- Ans. 8–11%
- Q. 775.** Triticum aestivum is a type of wheat.
- Ans. Hexaploid
- Q. 776.** When seed is dropped by hand in furrow it's known as.
- Ans. Kera method
- Q. 777.** Word staple food grain.
- Ans. Wheat
- Q. 778.** Seed rate of wheat is.
- Ans. 100 kg./ha.
- Q. 779.** Most of the present days India's wheat varieties contains the gene.
- Ans. Rht₁, & Rht₂ (Rht : Reduced height)
- Q. 779a.** Biofertilizer useful for wheat is
- Ans. Azatobacter

- Q. 780.** Heera, Moti, Arjun and Lal Bahadur are the type of varieties.
- Ans. 3 gene dwarf varieties
- Q. 781.** The protein which is essential for good bread quality and chapati making is
- Ans. Gluten
- Q. 782.** If sowing is done by the dibbler the seed rate will be.
- Ans. 25–30 kg./ha.
- Q. 783.** Starch in wheat grain is.
- Ans. 60–68%
- Q. 784.** Moisture content at harvesting stage in wheat is.
- Ans. 25–30%
- Q. 785.** National average yield of wheat is .
- Ans. 22 kg/ha.
- Q. 786.** Triticum aestivum was first introduced in India by
- Ans. N. E. Borlang of Mexico
- Q. 787.** Flowering portion of wheat is called
- Ans. Spike
- Q. 788.** Species can be grown with minimum irrigation
- Ans. Triticum durum
- Q. 789.** The variety which contributed more production during Green revolution
- Ans. HD2329
- Q. 790.** FIRB
- Ans. Furrow Irrigated Ridge bed method in wheat for serving irrigation water

3. Maize

- Q. 791. Botanical name of Maize
Ans. *Zea mays* L. Chromosome number ($2n = 20$)
- Q. 792. Origin country
Ans. Mexico
- Q. 793. Critical stage of water application
Ans. Tasseling to silking
- Q. 794. Suitable temperature for crop growing
Ans. 32°C
- Q. 795. Common Herbicide used in Maize is
Ans. Simazine
- Q. 796. Hybrid variety of Maize
Ans. Sangam/Ganga Safed
- Q. 797. Double cross techniques of production of Maize introduced by
Ans. D. F. Jones (1920)
- Q. 798. On Maize, plants first appearance is of
Ans. Tassels (Male Inflorescence)
- Q. 799. Female Inflorescence is called
Ans. Cob or ear
- Q. 800. Maximum root zone depth for Maize
Ans. 400–600 mm
- Q. 801. Water requirement for Maize crop is
Ans. 500–800 mm
- Q. 802. Optimum harvesting moisture content for maize is
Ans. 20–25% (wb)
- Q. 803. Protein content of Maize
Ans. 10% (Zein). It is deficient in Tryptophan and Lysine
- Q. 804. Maize variety used for snack food
Ans. *Zea mays amylacea*

- Q. 805. Seed rate
Ans. 18–20 kg/ha
- Q. 806. Serious pest for Maize (Pop corn)
Ans. Maize borer (*Chilo partellus*)
- Q. 807. Waxy Maize (Originated in China)
Ans. *Zea mays ceratina*
- Q. 808. Hybrid maize was first reported by
Ans. E. M. East and G. H. Hull in year 1909

4. Sorghum

- Q. 809. Botanical name of Sorghum/Jowar
Ans. *Sorghum bicolor*
- Q. 810. Harvesting of sorghum is done at grain moisture range
Ans. 21–24% by weight
- Q. 811. Jowar is native of
Ans. Africa
- Q. 812. Sorghum hybrid is
Ans. CSH-1 (released in the year 1964)
- Q. 813. Protein and Calcium, content of Sorghum /Jowar
Ans. 10–12% and 25%
- Q. 814. The best high yield varieties of Rabi Jowar is
Ans. M. 35-1
- Q. 815. Seed rate
Ans. 8–12 kg/ha
- Q. 816. In India maximum producing state.
Ans. Maharastra
- Q. 817. Inflorescence of Sorghum
Ans. Panicle (head)

5. Barley

- Q. 818. Scientific name of Barley**
Ans. *Hordeum vulgare* ($2n = 14$)
- Q. 819. Top growing state**
Ans. Rajasthan (30% of total area)
- Q. 820. Inflorescence of barley**
Ans. Spike (Head of ear)
- Q.821. Growing temperature.**
Ans. 12-15°C
- Q.822. Protein content**
Ans. 10%
- Q.823. pH range**
Ansl. 7-8
- Q.824. Growth stages**
Ans. 1. germination and initial seedling establishment
2. tillering, 3. jointing and booting 4. heading
5. ripening, 6. maturity and drying.
- Q. 825. Grain maturity temperature**
Ans. 30°C
- Q. 826. Seed rate of Barley**
Ans. 75-80 kg/ha
- Q. 827. Main characteristics of Barley**
Ans. Malting quality

6. Pearl Millet

- Q. 828. Botanical name of Pearl Millet**
Ans. *Pennisetum glaucum* L.
- Q. 829. Native country**
Ans. Africa
- Q. 830. Also known as**
Ans. Cattail and bulrush millet

- Q. 831. Largest producing state in India**
Ans. Rajasthan followed by Maharashtra
- Q. 832. Largest producer in the world**
Ans. India
- Q. 833. Temp. range for maximum output**
Ans. 30-35 °C
- Q. 834. Hybrid varieties**
Ans. HB 1, 2, 3, 4 & 5, Pusa 23
- Q. 835. Downey mildew is due to**
Ans. *Sclerospora graminicola*
- Q. 836. Ergot an important disease is due to**
Ans. *Claviceps fusiformis* (AAO, 2010)
- Q. 837. Protein and fat content**
Ans. 11.6% and 5%
- Q. 838. The country first developed hybrid pearl millet**
Ans. India

Pearl Millet is highest drought tolerant crop among Cereals and Millets.

7. Chick Pea (Bengal Gram)

- Q. 839. Botanical name of Gram (Chick pea).**
Ans. *Cicer arietinum* (Browngram), *Cicer Kabulianum* (Kabuli white gram)
- Q. 840. Origin of gram was in.**
Ans. South West Asia or India
- Q. 841. Root system of gram is.**
Ans. Tap root system
- Q. 842. Type of soil best for chick pea is**
Ans. Light Alluvial soil
- Q. 843. Pollination type of gram is.**
Ans. Self pollinated

- Q. 844. Sour taste of gram leaf is due to.
Ans. Maleic & Oxalic acid
- Q. 845. Deep sowing of gram is protection of.
Ans. Wilt disease
- Q. 846. Best variety for dry land is.
Ans. C-235
- Q. 847. Early maturing variety having medium sized grain is.
Ans. Chaffa (1948)
- Q. 848. Optimum sowing time of gram is.
Ans. 15 Oct.-20 Oct.
- Q. 849. Seed rate of gram is.
Ans. 80-100 kg/ha.
- Q. 850. Important operation which is done in gram crop is.
Ans. Nipping (Process of plucking the apical buds)
- Q. 851. Time of Nipping operation is.
Ans. 30-40 Days after sowing
- Q. 852. Seed bed for gram should be.
Ans. Rough
- Q. 853. Gram fruit is known as.
Ans. Pod
- Q. 854. Spacing for gram is.
Ans. 30 × 10 cm.
- Q. 855. Protein content in gram.
Ans. 21%
- Q. 856. Gram is a.
Ans. Rabi crop
- Q. 857. Variety developed by I.A.R.I.
Ans. Pusa 209, DG 203
- Q. 858. Critical stage for irrigation.
Ans. Pre-flowering, Pod developing stage

8. Pigeon Pea/Red Gram/Arhar

(Highly drought resistant crop)

- Q. 801. Botanical name of arhar is.
Ans. *Cajanus cajan*
- Q. 802. Origin of arhar is.
Ans. South Africa
- Q. 803. Temperature for germination is.
Ans. 30-35°C
- Q. 804. Temperature for growth is.-
Ans. 20-25°C
- Q. 805. Sowing time of arhar is.
Ans. 15 June
- Q. 806. Spacing for arhar is.
Ans. 60 × 15cm.
- Q. 807. Seed rate for arhar is.
Ans. 12-15 kg/ha.
- Q. 808. Proportion of seeds to pods.
Ans. 50-60%
- Q. 809. Highest production in the state.
Ans. Uttar Pradesh (about 20% of total production)
- Q. 810. Highest productivity in the state of.
Ans. Bihar (1115 kg/ha)
- Q. 811. Early maturing variety.
Ans. Prabhat, UPAS 120 days
- Q. 812. Harvest index of arhar is.
Ans. 19% (very low)
- Q. 813. Hybrid variety released by ICRISAT.
Ans. ICPH-8 (yield 20 q/ha)

Q. 814. Protein content of arhar is.

Ans. 25%

Q. 815. Earliest variety

Ans. UPAS-120

9. Sugarcane

Q. 816. Botanical name of Sugarcane

Ans. *Sccharum officinarum* (Tropical cane)

Sccharum barberi (Indian cane)

Q. 817. Inflorescence of sugarcane is called as.

Ans. Arrow or open panicle (JRF, 1994)

Q. 818. Arrowing (Flowering of sugarcane plant) stage arrives on.

Ans. 300-350 days after planting

Q. 819. Sugar mills are highest in India with highest sugar production

Ans. Uttar Pradesh (105 mills) (JRF, 1995)

Q. 820. In sugarcane upper 1/3 part is used for sowing due to.

Ans. High nitrogenous substance & glucose for better germination.

Q. 821. Highest producer of sugar from unit area is.

Ans. Maharashtra

Q. 822. Leading producer in the world.

Ans. India

Q. 823. Higher dose of nitrogen decrease the

Ans. Sucrose content

Q. 824. Most critical stage for irrigation is.

Ans. Formative stage

Q. 825. Germination phase comes after

Ans. 0-60 DAP

Q. 826. Maturity phase comes after

Ans. 250-365 DAP

Q. 827. Formative stage comes after.

Ans. 60-130 days after planting

Q. 828. Most popular planting method in north India.

Ans. Flat bed planting

Q. 829. Brix reading should be for proper maturity.

Ans. 16-18%

Q. 830. Jaggery extracted from juice is.

Ans. 9-10%

Q. 731. Sucrose content in cane.

Ans. 13-24%

Q. 832. Sugar from juice is.

Ans. 6-10%

Q. 833. Soils which are unsuitable for sugarcane are.

Ans. Saline soils

Q. 834. Noble cane is.

Ans. *S. officinarum*

Q. 835. Adsali sugarcane is planted in.

Ans. June-July

Q. 736. Duration takes adsali sugarcane.

Ans. 18 months

Q. 837. Brix meter is used for.

Ans. Measuring maturity of sugarcane

Q. 838. State which has highest productivity.

Ans. Tamilnadu

Q. 739. Seed rate for 3 budded sets.

Ans. 25000 - 30,000 sets

Q. 840. Seed rate for 2 budded sets.

Ans. 45,000 - 50,000 sets

- Q. 841. Seed rate for single budded sets.
Ans. 1,25000 sets
- Q. 842. Origin of sugarcane.
Ans. India
- Q. 843. Sets roots are.
Ans. Temporary roots
- Q. 844. Temperature required for grand phase in sugarcane.
Ans. 70 °F
- Q. 845. Earthing should be done in the month of.
Ans. June-July
- Q. 846. Tying should be done in the month of.
Ans. August
- Q. 847. Sowing time of Eksali crop.
Ans. Jan.-Feb. (South India)
- Q. 848. Wonder cane is.
Ans. COC-671 (High sugar%)
- Q. 849. Sugarcane ripener chemical.
Ans. Glyphosate
- Q. 850. Spacing of row to row.
Ans. 90cm.
- Q. 851. Name of wild type cane.
Ans. *S. spontaneum*
- Q. 852. Family of sugarcane.
Ans. Gramineae
- Q. 853. Burning of canes is done to.
Ans. Improve sucrose & juice quality
- Q. 854. Indian cane indigenous to North and Eastern India
Ans. *Saccharum barberi*
- Q. 855. Major disease of sugarcane is
Ans. Red rot

10. Ground Nut

- Q. 856. Botanical name of Ground nut.
Ans. *Arachis hypogea*
- Q. 857. Origin of Ground nut.
Ans. Brazil
- Q. 858. State which is largest producer.
Ans. Gujarat
- Q. 859. Shelling percentage.
Ans. 70%
- Q. 860. Oil percentage in Ground nut.
Ans. 40-45%
- Q. 861. Nitrogen % in Ground nut cake.
Ans. 7-8%
- Q. 862. Best soil for Ground nut cultivation.
Ans. Sandy
- Q. 863. Seed rate of Ground nut.
Ans. 100-120 kg/ha.
- Q. 864. Spacing for Ground nut.
Ans. 30 × 10cm.
- Q. 865. High yielding type of Ground nut.
Ans. Spreading type (Late maturity)
- Q. 866. Pegging stage comes after.
Ans. 55 D.A.S.
- Q. 867. Important variety.
Ans. Jyoti (Bunch type), Chandra (spreading type)
- Q. 868. Chemical used for floral initiation.
Ans. NAA@40 PPM

- Q. 869. Fruit of Ground nut known as.**
Ans. Nut
- Q. 870. Botanical name of bunchy type Ground nut.**
Ans. *Arachis hypogaea* sub spp. *fastigata*
- Q. 871. Botanical name of spreading type Ground nut.**
Ans. *Arachis hypogaea* sub spp. *procumbens*
- Q. 872. Bitterness of kernel due to.**
Ans. Aflatoxin
- Q. 873 Sowing time of Ground nut.**
Ans. 20 June to 31 July
- Q. 874. Protein content in Ground nut.**
Ans. 26%
- Q. 875. Protein content in shell.**
Ans. 7%
- Q. 876. Gynophore of Ground nut is known as.**
Ans. Peg
- Q. 877. Rostee disease is due to.**
Ans. Virus
- Q. 888. Vector of virus.**
Ans. Aphid
- Q. 889. Major pest of Ground nut.**
Ans. White grub
- Q. 890. Tikka disease (an important diseases of ground nut) is due to.**
Ans. *Cercospora personata* & *C. arachidicola*
- Q. 891. Best and suitable methods of irrigation.**
Ans. Check Basin irrigation
- Q. 892. Critical stages for irrigation**
Ans. Flowering stage-Pegging stage-Pod formation stage.

11. Sunflower

- Q. 893. Botanical name is**
Ans. *Helianthus annuus*
- Q. 894. Sunflower is known as**
Ans. Day neutral crop.
- Q. 895. Head of sun flower is called**
Ans. Capitulai
- Q. 896. Edible oil content**
Ans. 45-50%
- Q. 897. Critical stages**
Ans. 1. Seedling (10-12 DAS)
2. Bud initiation (130-35 DAS)
3. Flowering (50-55 DAS)
4. Seed Development stage (70-90 DAS)
- Q. 898. Important varieties**
Ans. Modern, Jawalamukhi, M₁SFH8,17, JS-1 etc.
- Q. 899. Yield**
Ans. 20-30 Qt/ha.

12. Soyabean

- Q. 900. Botanical name.**
Ans. *Glycine max* also known as Gold crop of America
- Q. 901. The crop is known as**
Ans. Wonder crop.
- Q. 902. Protein content**
Ans. 40-42%
- Q. 903. Oil content**
Ans. 20-22%

Q. 904. Beary taste in soybean is due to

Ans. Sulphur compound

Q. 905. Critical stages

Ans. 1. Sprouting 2. Flowering
3. Pod filling 4. Grain development.

13. Linseed

Q. 906. Botanical Name

Ans. *Linum Usitatisium*

Q. 907. Fibre linseed called

Ans. Reflex

Q. 908. Percent oil contents

Ans. 40-42%

Q. 909. Percent protein.

Ans. 20%

Q. 910. Percent Linolinic acid

Ans. 50-60%

Q. 911. Seed rate

Ans. 25-30 kg/ha

Q. 912. Critical stages

Ans. 1. Leaf stage 2. Tillering stage
3. Flower stage 4. Pod filling.

Q. 913. Varieties

Ans. Mukta, sweta, Jawahar-7, Jawahar-17, Gourav, Shital

Q.914. Fruit of Linseed is

Ans. Seedball

14. Rapeseed Mustard

Q.915. Botanical name:

Ans. *Brassica spp* White Mustard: *Brassia alba*

Q.916. Centre of origin:

Ans. Asia Minor and China

Q.917. Pungency in mustard oil due to

Ans. Glucocylates

Q.918. Oil contents:

Ans. 37 to 49% (High in yellow sarson)

Q.919. Highest producing state:

Ans. Rajasthan

Q.920. Highest productivity

Ans. Haryana

Q.921. Fruit of mustard

Ans. Siliqua

Q.922. Protein content

Ans. 24-30%

Q.923. Seed rate

Ans. 5-6 kg/ha

Q.924. Yield rate

Ans. 500-800 kg/ha

Q.925. Varieties

Ans. Sangam, Type-9, Type-36, Brown BSH-1, Pusa Kalyani, Suphala Yellow, Thumka

(JRF 2013)

CULTIVATION OF VEGETABLES

15. Tomato

Q. 926. Botanical name of tomato is.

Ans. *Solanum lycopersicum* (old name is *Lycopersicon esculentum*)

Q. 927. Family of tomato is known as.

Ans. *Solanaceae* genus *Lycopericon esculentum* (cultivated) and *pimpinellifolium* (small fruited)

- Q. 928. Origin of tomato was in.**
Ans. Peru
- Q. 929. Fruit type of tomato is.**
Ans. Berry
- Q. 930. Popular variety of tomato.**
Ans. Pusa ruby, Arka vikas, Sawrab, Ashish
- Q. 931. Seed rate of tomato.**
Ans. 400–500 gm/ha.
- Q. 932. BER disease is due to.**
Ans. Ca deficiency
- Q. 933. Major pest of tomato.**
Ans. Fruit borer (*Helicoverpa* spp.)
- Q. 934. Chemical used for tomato sauce preservation.**
Ans. Sodium benzoate
- Q. 935. Tomato is susceptible for.**
Ans. Frost
- Q. 936. Red colour of tomato is due to**
Ans. Lycopene
- Q. 937. Requirement of per capita vegetables/day.**
Ans. 275 gm/day
- Q. 938. Availability of per capita vegetables/day.**
Ans. 120 gm/day
- Q. 939. Tomato is also known as.**
Ans. Wolf apple
- Q. 940. Most serious virus disease of Tomato**
Ans. Leaf curl virus
- Q. 941. Best suitable soil for tomato**
Ans. Rich loam soil
- Q. 941a. Curly top disease is caused by**
Ans. Beet leaf hopper
- Q. 941b. Edible Part of Tomato**
Ans. Pericarp and Placenta

CULTIVATION OF VEGETABLES

16. Potato

- Q. 942. Botanical name is**
Ans. *Solanum tuberosum* (*Solanum tuberosum*)
- Q. 973. Largest producing country**
Ans. China
- Q. 944. Potato introduced in India**
Ans. From Europe in 17th century
- Q. 945. Important Nutrient for potato crop**
Ans. Nitrogen
- Q. 946. Protein content of potato**
Ans. 1.6%
- Q. 947. India's rank in potato production**
Ans. 5th rank
- Q.948. Maximum soil area under potato production in India**
Ans. Alluvial soils
- Q. 949. Serious diseases of potato crop**
Ans. Late blight
- Q. 950. Largest producing state in India**
Ans. Uttar Pradesh
- Q. 951. Dehaulming in potato is done by**
Ans. CuSO_4 (Copper sulphate) to get quality seed tuber
- Q. 952. Solanin content**
Ans. 5 mg/100 gm of potato
- Q. 953. Most critical stage for irrigation**
Ans. 25% tuber formation stage
- Q. 954. Excess Mg produce type of toxicity in potato**
Ans. stem streak necrosis
- Q. 955. Best suitable soil for potato**
Ans. Sandy loam soil

17. Cole Crops (Includes Cabbage, Cauliflower and Broccoli)

CABBAGE

- Q. 956. All cole crops belongs to family
Ans. *Curciferace*
- Q. 957. Botanical name of cabbage
Ans. *Brassica oleracea var capitata*
- Q. 958. Type of Inflorescence
Ans. Catkin
- Q. 959. Largest producing country
Ans. China followed by India
- Q. 960. Anticancer properties due to
Ans. Indole-3-cardinal
- Q. 961. Indian productivity of cabbage
Ans. 30Mt/ha (U. P.)
- Q. 962. Hybrid varieties
Ans. Pusa Synthetic, Pusa Mukta and Pusa Drumhead
- Q. 963. Tipburn disease is due to
Ans. Calcium deficiency

18. Cauliflower

- Q. 964. Botanical name of Cauliflower
Ans. *Brassica oleracea var botrytis*
- Q. 965. Introduced in india by
Ans. Dr. Jemson in 1822
- Q. 966. Native country
Ans. Cyprus

- Q. 967. Highest cauliflower producing state
Ans. West Bengal
- Q. 968. Highest producing country
Ans. China followed by India
- Q. 969. Hybrid variety
Ans. Pusa Aghani, Snowball, Pusa hybrid2
- Q. 970. Variety which can be grown April to July at hills.
Ans. Pusa Himjyoti
- Q. 971. Edible part of cauliflower
Ans. Curd
- Q. 972. Blanching is a important process of
Ans. cauliflower
- Q. 973. Whiptail in cauliflower due to
Ans. Mo deficiency (JRF 2004)
- Q. 974. pH of the soil for maximum production should be
Ans. 5.5-6.6

19. Other Vegetables

- Q. 975. Richest source of riboflavin
Ans. Radish leaves
- Q. 976. Richest source of thiamine
Ans. Giant chillies
- Q. 977. Richest source of fat and vitamin C
Ans. Drumstick
- Q. 978. Richest source of carbohydrate
Ans. Tapioca

Q. 979. Largest producing state in India for Brinjal

Ans. West Bengal

Q. 980. Main pigment in brinjal crop

Ans. Anthocyanin

Q. 981. Use of white coloured brinjal

Ans. For diabetic patients

Q. 982. Serious pest of brinjal vegetable

Ans. Shoot and Fruit borer

Q. 983. Largest producer of chillies in world

Ans. India

Q. 984. Pungency in Radish is due to

Ans. Isothiocyanates

Q. 985. Bitterness in cucumber is due to

Ans. Cucurbitacin

(JRF 2010)

Q. 986. Brinjal is native to

Ans. India

Q.987. Country leading in okra production

Ans. India (4.8 MT)

Q.988. Fruits of bitter gourd are rich in

Ans. Iron

Q.989. Vegetable counted as riped fruit

Ans. Brinjal

FRUITS

20. Mango

Q. 990. Botanical name of mango is.

Ans. *Mangifera Indica*

Q. 991. Highest productivity of mango in world.

Ans. Venezuela

Q. 992. Fruit type of mango is.

Ans. Drupe

Q. 993. Origin of mango was.

Ans. Indo-Burma

Q. 994. India's share is Mango production.

Ans. 57%

Q. 995. Cagging technique of breeding first used by

Ans. Dr. R.N. Singh

Q. 996. Edible part of mango is known as.

Ans. Mesocarp

Q. 997. Good mango vars have a TSS of

Ans. 20%

Q. 998. Dwarf variety of mango.

Ans. Amrapali

Q. 999. Seedless variety of mango is.

Ans. Sindhu

Q.1000. Sweetest variety of mango is.

Ans. Chausa

Q.1001. Suitable variety for processing in mango.

Ans. Alphonso

Q.1002. Propagation of mango is done by the method.

Ans. Veneer grafting

Q.1003. Pollination is mediated by.

Ans. House fly

Q.1004. Major pest of mango.

Ans. Mango hoppers

Q.1005. Major disease of mango.

Ans. Powdery mildew

Q.1006. Mango malformation is due to.

Ans. Low temperature

Q.1007. In mango black tip disease mostly occurs due to the following.

Ans. SO_2 , CO, C_2H_2

Q.1008. Inflorescence of mango

Ans. Panicle

Q.1009. Control of Black tip by.

Ans. Borax spray

Q. 1010. Spongy tissue is due to.

Ans. Convection heats (Highly susceptible Alphonso)

Q. 1011. Internal fruit necrosis is due to.

Ans. Boron deficiency

Q.1012. Deblossoming is done for.

Ans. Control of malformation.

Q. 1013. Paclobutrazol & Kuttar chemical is used in mango to.

Ans. Avoid the alternate bearing

21. Banana

Q.1014. Scientific name of Banana is

Ans. *Musa acuminata*

Q.1015. Ripe Banana contains sugar

Ans. 26%

Q.1016. India's share in Banana production

Ans. 31.7%

Q.1017. Banana is native to

Ans. South East Asia

Q.1018. Largest producer in the world

Ans. India is the largest producer

Q.1019. Leading banana producing state in India

Ans. Tamilnadu

Q.1020. Ideal temperature range to grow banana is

Ans. 20–40 °C

Q.1021. Serious fungal disease of Banana

Ans. Sigatoka leaf spot

Q.1022. Spadix

Ans. Inflorescence of banana

Q.1023. Seedlessness of banana is due to

Ans. Vegetative parthenocarpy

Q.1024. Most serious disease of Banana

Ans. Bunchy top

22. Apple

Q.1025. Scientific name of Apple

Ans. *Malus × domestica*

Q.1026. Apple is propagated by

Ans. Shield budding and grafting

Q.1027. Apple bowl of India

Ans. Himachal Pradesh

Q.1028. Origin or Native to

Ans. Asia minor

Q.1029. Redness in Apple is due to

Ans. Anthocyanin (ARS 2010)

Q.1030. Country leading in Apple production

Ans. China (33 MT)

23. Guava

- Q. 1031. Scientific name of Guava**
 Ans. *Psidium guajava*
- Q.1032. Origin of Guava fruit**
 Ans. West Indies to Peru
- Q. 1033. State with highest production in India**
 Ans. Uttar Pradesh
- Q.1034. Hybrid Varieties**
 Ans. Kohir safed and safed jam
- Q.1035. Sardar is a variety of**
 Ans. Guava
- Q.1036. Dual purpose variety of guava is**
 Ans. Lalit
- Q.1037. Guava most popular variety**
 Ans. Allahabad Safeda

24. Papaya

- Q.1038. Scientific name of Papaya**
 Ans. *Carica papaya*
- Q.1039. Native to country**
 Ans. Tropical America
- Q.1040. Yellow pigment in papaya is due to**
 Ans. Caricaxanthin
- Q.1041. Largest producing state in India**
 Ans. Andhra Pradesh followed by Gujrat
- Q.1042. Highest production in world and India's rank**
 Ans. Brazil, India ranks 4th

- Q.1043. Richness of papaya in Vitamin A**
 Ans. Second after Mango
- Q.1044. Pusa Nanaha is a variety of**
 Ans. Papaya
- Q.1045. Papaya is most susceptible to**
 Ans. Water logging
- Q.1046. Papin is extracted from which part**
 Ans. Unmatured fruit

25. Other Fruits

- Q.1047. Origin of Lichi is**
 Ans. China
- Q.1048. Strawberry is propagated by**
 Ans. Runners
- Q.1049. King of arid fruits**
 Ans. Ber
- Q.1050. Fruit having twice energy value to banana**
 Ans. Avocado (Also called Butter fruit)
- Q.1051. Varieties of sweet orange are;**
 Ans. Mosambi, Blood red Malta, Pineapple, Valencia and Jaffa.
- Q.1052. Grape is native to**
 Ans. Mediterranean region
- Q.1053. Datepalm is native to**
 Ans. Iraq
- Q.1054. Fruit type of Grape, Brinjal, Phalsa Chili, Banana, Date palm and Guava**
 Ans. Berries type

- Q.1055. Fruit type of citrus.**
Ans. Hesperidum
- Q.1056. Fruit type of Mango, Plum, Coconut, Cherry**
Ans. Drupe
- Q.1057. Origin of Loquat fruit is**
Ans. China
- Q.1058. Propagation method for Banana.**
Ans. Sword suckers
- Q.1059. Banana suckers arise from**
Ans. Underground rhizomes
- Q.1060. Propagation method for Citrus.**
Ans. T/shield budding
- Q.1061. Propagation method for Grapes.**
Ans. Hard wood cutting
- Q.1062. Propagation method for Guava.**
Ans. Stooling/mound layering
- Q.1063. Propagation method for Sapota.**
Ans. Inarching
- Q.1064. Propagation method for Anola.**
Ans. Patch budding
- Q.1065. Propagation method for Date palm.**
Ans. Off shoot
- Q.1066. Recommended fruits/day/person.**
Ans. 120 gm/day
- Q.1067. Availability of fruits/day/person.**
Ans. 70-80 gm/day
- Q.1068. Sindhu variety is a cross of.**
Ans. Ratna × Alphanso

- Q.1069. Ratna variety is a cross of.**
Ans. Neelam × Alphanso
- Q.1070. Mallika is a cross of.**
Ans. Neelam × Dashehari
- Q.1071. Amrapali is a cross of.**
Ans. Dashehari × Neelam
- Q.1072. Most export variety of mango is**
Ans. Alphanso
- Q.1073. Arka Aruna is a cross of**
Ans. Banganapalli with Alphanso
- Q.1074. Manjira is a cross of**
Ans. Romani Vs Neelam
- Q.1075. Country leading in Lichi production**
Ans. China (2.1 MT)
- Q.1076. Country leading in Peaches production**
Ans. China (20 MT)
- Q.1077. Country leading in Cherry production**
Ans. Turkey (4.1 MT)

26. Flowers

- Q.1078. Leading flowers producing country**
Ans. Netherland
- Q.1079. Largest flower producing state in India.**
Ans. Tamilnadu
- Q.1080. Total area under floriculture in India**
Ans. 1 lac hectare (Approx.)
- Q.1081. Flower capital of the world**
Ans. California (USA)

Q.1082. Queen of flowers

Ans. Roses

Q.1083. Botanical name of Gladiolus

Ans. *Gladiolus grandifloras*

Q.1084. Native of Marigold

Ans. Mexico

Q.1085. Rose is propagated by.

Ans. T-budding

Q.1086. What is a hedge

Ans. Shrub planted on boundry for fencing

Q.1087. What are edge plants

Ans. The plants grown on the border of plot

Q.1088. Topiary

Ans. Art of training the plants into different shapes or art of creating sculputures using clipped trees shrubs and subshrubs.

Q.1089. Which plant produces the largest flower?

Ans. *Rafflesia arnoldii*.

Q.1090. Thornless variety of rose is

Ans. Chitra

Q.1091. Gladiolus is propagated by

Ans. Corm

Q.1092. Rose is commonly propagated by

Ans. 'T' or shield budding

Q.1093. Gladiolus belongs to family

Ans. Iridaceae

SOIL SCIENCE

Q.1094. Granite & Basalt are type of rocks.

Ans. Igneous rocks

Q.1095. Lime stone, Dolomite, Sandstone are type of rocks.

Ans. Sedimentary rocks

Q.1096. Gneiss & Marble are type of rocks.

Ans. Metamorphic rocks

Q.1097. Chief constituent of Sandy fraction.

Ans. Quartz

Q.1098. Most dominant mineral on Earth crust.

Ans. Feldspars (48%)

Q.1099. Major source of Mg.

Ans. Dolomite

Q.1100. Major source of P.

Ans. Apatite

Q.1101. Major source of B.

Ans. Tourmaline

Q.1102. Major source of Mo.

Ans. Olivine

Q.1103. Major source of K.

Ans. Orthoclase

Q.1104. Most resistant to weathering.

Ans. Quartz

Q.1105. Least resistant to weathering.

Ans. Calcite

Q. 1106. Kankar nodules are found mostly in.

Ans. Red soils

- Q. 1107. Process of moving out of sesquioxide is known as.
 Ans. Podzolization
- Q.1108. Process of mixing of soils is known as.
 Ans. Pedoturbation
- Q.1109. Soils having at least 20% organic matter are known as.
 Ans. Organic soils
- Q.1110. Law of minimum was proposed by.
 Ans. Von Liebig (1840)
- Q. 1111. 'O' horizon is absent in.
 Ans. Arable soils
- Q.1112. Top most mineral horizon is.
 Ans. 'A' horizon
- Q.1113. Maximum Eluviation horizon is.
 Ans. E horizon
- Q.1114. Alluvial horizon is.
 Ans. B horizon
- Q.1115. Physical property which can't be changed.
 Ans. Soil texture
- Q.1116. Mechanical analysis of soils separation is done by.
 Ans. Hydrometric method
- Q.1117. Particle more than 250mm in diameter is known as.
 Ans. Stone
- Q.1118. Diameter of coarse sand particle is.
 Ans. 0.2-2 mm
- Q.1119. Bulk density formula for soils is
 Ans. $B.D. = \frac{\text{Weight of oven dry soil}}{\text{Volume of soil (Solid + Pores)}}$

- Q.1120. Diameter of fine sand particle is.
 Ans. 0.02 - 0.2 mm
- Q.1121. Diameter of silt particle is
 Ans. 0.02 - 0.002 mm
- Q.1122. Diameter of clay particle is.
 Ans. Less than 0.002 mm
- Q.1123. The soils which are most suitable for most of the crops are.
 Ans. Sandy loams
- Q.1124. Soil structure which is best for cultivation is.
 Ans. Crumby structure
- Q.1125. Particle Density of most of the soils is.
 Ans. 2.65 g/cm³
- Q.1126 Bulk Density of general soils is.
 Ans. 1.33 mg/cm³
- Q.1127. Total pore space are highest in.
 Ans. Clay soils
- Q.1128. Portion of capillary water lying between field capacity (1/3 atm) and wilting coefficient (15 atm) is known as.
 Ans. Available water
- Q.1129. Water held up to the tension about 31 atm is known as.
 Ans. Hygroscopic coefficient
- Q.1130. Major source of Mn
 Ans. Pirolusite.
- Q.1132. Kaolinite is a type of mineral.
 Ans. 1 : 1 type
- Q.1133. Montmorillonite is a type of mineral.
 Ans. 2 : 1 type expanding type mineral

Q.1134. Vermiculate is a type of mineral.

Ans. Limited expanding 2 : 1 type mineral.

Q.1135. Micas are type of mineral.

Ans. Non Expanding type mineral

Q.1136. Chlorites are type of mineral.

Ans. 2 : 1 : 1 type mineral

Q.1137. Recently formed soil order is.

Ans. Entisols

Q.1138. Black soils found in.

Ans. Maharashtra

Q.1139. Red soils are dominant in.

Ans. TamilNadu

Q.1140. Laterite soils are dominant in.

Ans. Karnataka & Kerala

Q.1141. Weight of soil furrow slice.

Ans. 2×10^6 kg/ha.

Q.1142. Humic acid is soluble in.

Ans. Alkali solution

Q.1143. C : N ratio of humus.

Ans. 10 : 1

Q.1144. CEC of humus.

Ans. 150–300 C mol (p⁺)/kg soil

Q.1145. C : N ratio of Legumes.

Ans. 20 : 1 to 30 : 1

Q.1146. C : N ratio of F.Y.M.

Ans. 100 : 1

Q.1147. C : N ratio of micro organism.

Ans. 4 : 1 to 9 : 1

Q.1148. Wood is mainly decomposed by.

Ans. Actinomycetes

Q.1149. Organic matter content in Indian soils is generally.

Ans. <0.5%

Q.1150. Optimum temperature & pH for Nitrifying bacteria is.

Ans. Temp. 30–35°C, pH 6.5–7.5

Q.1151. Loss of N₂ in the form of NH₃ in alkaline medium known as.

Ans. Volatilization

Q.1152. C.E.C. of vermiculate.

Ans. 80–150 C mol(P⁺) /kg soil

Q.1153. CEC of montmorillonite.

Ans. 80–100 C mol(P⁺) /kg soil

Q.1154. N, P, K % in F.Y.M.

Ans. 0.5% N, 0.2% P₂O₅, 0.5% N₂O

Q.1155. Most outstanding green manure crop.

Ans. Sun hemp

Q.1156. Fastest N fixing plant.

Ans. Sesbania rostrata

Q.1157. N% in cotton cake.

Ans. 6.5% N

Q.1158. N% in safflower cake.

Ans. 7.8% N

Q.1159. Substances added to soils for the improvement of their condition known as.

Ans. Amendments

Q.1160. The fertilizer having less than 25% of the primary nutrients known as.

Ans. Low analysis fertilizers.

Q.1161. Equivalent acidity of NH₄Cl.

Ans. 128

- Q.1162. Equivalent acidity of $(\text{NH}_4)_2 \text{SO}_4$.
Ans. 110
- Q.1163. Equivalent acidity of urea.
Ans. 80-85
- Q.1164. Equivalent acidity of DAP.
Ans. 77
- Q.1165. Equivalent acidity of Ammonium Nitrate.
Ans. 60
- Q.1166. Equivalent basicity of NaNO_3 .
Ans. 29
- Q.1167. Equivalent basicity of $\text{Ca}(\text{NO}_3)_2$.
Ans. 21
- Q.1168. The crops which absorb the ammonical form directly.
Ans. Paddy & Potato
- Q.1169. N% in sodium nitrate.
Ans. 16% N
- Q.1170. N% in ammonium sulphate.
Ans. 20.6% N
- Q.1171. Sulphur % in Ammonium sulphate.
Ans. 24% S
- Q.1172. N% in Ammonium Nitrate.
Ans. 33-35% N
- Q.1173. N% in Ammonium Sulphate Nitrate.
Ans. 26% N
- Q.1174. Sulphur % in Ammonium sulphate Nitrate.
Ans. 15% S
- Q.1175. N% in kisan khad (CAN).
Ans. 25-28% N

- Q.1176. N% in Ammonium Chloride.
Ans. 26% N
- Q.1177. N% in urea.
Ans. 46% N
- Q.1178. Biuret should be according to fertilizer control order.
Ans. < 1.5%
- Q.1179. N% in calcium cyanamide.
Ans. 20.6%
- Q.1180. Highest N% in fertilizer.
Ans. Aqueous Ammonia (80% N)
- Q.1181. Water soluble phosphatic fertilizer.
Ans. 1. S.S.P., D.S.P., T.S.P., D.A.P.
- Q.1182. Citrate soluble P fertilizer,
Ans. 1. Di calcium phosphate
2. Basic slag
3. Rhemania Phosphate
- Q.1183. Citrate & water Insoluble P fertilizer.
Ans. Rock phosphate, Raw bone meal, steamed bone meal
- Q.1184. P_2O_5 % in single super phosphate.
Ans. 16-20% P_2O_5
- Q.1185. P_2O_5 % in Double super phosphate (D.S.P.).
Ans. 32% P_2O_5
- Q.1186. N & P_2O_5 % in DAP
Ans. 16% N, 48% P_2O_5
- Q.1187. P_2O_5 % in Di calcium phosphate (D.C.P.).
Ans. 33-40% P_2O_5
- Q.1188. P_2O_5 % in Basic slag.
Ans. 14-18% P_2O_5

- Q.1189.** P_2O_5 % in Rock phosphate.
Ans. 20–30% P_2O_5
- Q.1190.** P_2O_5 % in Raw bone meal.
Ans. 20–25% P_2O_5
- Q.1191.** P_2O_5 % in steamed bone meal.
Ans. 20–30% P_2O_5
- Q.1192.** Sulphur % in S.S.P.
Ans. 12% S
- Q.1193.** Ca% in S.S.P.
Ans. 18–21% Ca
- Q.1194.** Ca% in Gypsum ($CaSO_4 \cdot 2H_2O$)
Ans. 29.2% Ca
- Q.1195.** S% in Gypsum.
Ans. 18.6% S
- Q.1196.** S% in potassium sulphate.
Ans. 17.5% S
- Q.1197.** K_2O % in Murate of potash (KCl).
Ans. 60%/20
- Q.1198.** K_2O % in potassium sulphate.
Ans. 48–52% (20)
- Q.1199.** Indian soils are deficient in.
Ans. Zinc
- Q.1200.** N% in Thio urea.
Ans. 36.8%
- Q.1201.** AM & N serve are.
Ans. Nitrification inhibitors
- Q.1202.** *Rhizobium melilotis* is used for the crops.
Ans. Medicago (Alfalfa), Trigonella (Fenugreek)
- Q.1203.** *R. trifolii* is used for.
Ans. Trifolium (Clover)

- Q.1204.** *R. leguminosarum* is used for.
Ans. Pisum (Pea), Lens (Lentil)
- Q.1205.** *R. Phaseoli* is used for.
Ans. Phaseolus (beans)
- Q.1206.** *R. Japonicum* is used for.
Ans. Glycine (Soyabean), Vigna (Cow pea), Arachis (Ground nut), Crotonaria
- Q.1207.** *Azotobacter* & *Beijerinckia* are.
Ans. Aerobic bacteria
- Q.1208.** Anaerobic bacteria.
Ans. Clostridium
- Q.1209.** *Azotobacter* is used for the crops like.
Ans. Rice, Cotton and Sugarcane
- Q.1210.** *Azospirillum* is used for.
Ans. Sorghum
- Q.1211.** Low status of N in soil when it is less than.
Ans. 250 kg/ha.
- Q.1212.** Analyzing process for determination of available N.
Ans. Alkaline permanganate method
- Q.1213.** Phosphorus is extracted by.
Ans. Olsen's method & Bray No. 1 method
- Q.1214.** K^+ & Na^+ is determined by.
Ans. Flame photometer
- Q.1215.** Organic carbon is determined by.
Ans. 1. Walkley & Black method 2. Morgan's method
- Q.1216.** Application of clay to sandy soils is known as.
Ans. Marling
- Q.1217.** The form of N is preferable for saline soils.
Ans. Nitrate form

- Q.1218.** Amonical fertilizers should be applied in.
Ans. Reduced zone
- Q.1219.** Nitrate fertilizers should be applied in.
Ans. Oxidized zone
- Q.1220.** Criteria of essentiality was given by.
Ans. Arnon & Stout (1939)
- Q.1221.** Functional nutrients are in number.
Ans. 20
- Q.1222.** Source of N for plants for absorption.
Ans. NO_3 (Mostly)
- Q.1223.** Source of P for plants for absorption.
Ans. H_2PO_4^- , HPO_4^{2-}
- Q.1224.** Source of B for plants for absorption.
Ans. $\text{B}_4\text{O}_7^{2-}$, H_2BO_3
- Q.1225.** Source of Mo for plants for absorption.
Ans. MoO_4^{2-}
- Q.1226.** Elements provide basic structure.
Ans. C, H, O
- Q.1227.** Energy Exchange elements.
Ans. H_2O
- Q.1228.** Highly mobile nutrients in plant.
Ans. N, P, & K
- Q.1229.** Immobile nutrients in plant.
Ans. Ca & B
- Q.1230.** Secondary nutrients are.
Ans. Ca, Mg, S
- Q.1231.** Zn, Fe, are.
Ans. Micro nutrients
- Q.1232.** Co is the structural component of.
Ans. Vit. B_{12}

- Q.1233.** S is essential for.
Ans. Oil seed crops
- Q.1234.** Na is essential for.
Ans. Sugarbeets
- Q.1235.** 'V' shaped yellowing at the tip of the lower leaves shows.
Ans. N deficiency
- Q.1236.** Chlorosis in between the veins and veins remain green shows.
Ans. Deficiency of Mg
- Q.1237.** Tip burn, margin scorching shows the deficiency of.
Ans. K^+
- Q.1238.** Interveinal chlorosis occurs due to.
Ans. Fe deficiency
- Q.1239.** Complete interveinal chlorosis occurs due to.
Ans. Mn deficiency
- Q.1240.** Grey speck of oat, Phala blight of sugarcane caused by.
Ans. Mn deficiency
- Q.1241.** Rosetting & excess gumming occurs due to.
Ans. Cu deficiency
- Q.1242.** Top sickness of tobacco occurs due to.
Ans. B deficiency
- Q.1243.** Beneficial elements are.
Ans. Co, Si, Na, Ni, Va
- Q.1244.** Ni & Co is most useful for the crops.
Ans. Legumes
- Q.1245.** Silicon is essential for.
Ans. Rice, Maize

- Q.1246.** Excess vegetative growth is due to.
Ans. High supply of N
- Q.1247.** Major constituent of chlorophyll is.
Ans. Mg
- Q.1248.** White tip & whitebud of maize occurs due to.
Ans. Zn deficiency
- Q.1249.** Sick leaf disease occurs due to.
Ans. P deficiency
- Q.1250.** Whiptail of cauliflower occurs due to.
Ans. Mo deficiency
- Q.1251.** Tea yellow disease occurs due to.
Ans. S deficiency
- Q.1252.** Failure of terminal bud & root tip due to.
Ans. Ca deficiency
- Q.1253.** Osmotic regulation is maintained by.
Ans. K^+
- Q.1254.** Die back of citrus occurs due to.
Ans. Cu deficiency
- Q.1255.** Brittle leaf occurs due to.
Ans. Ca deficiency
- Q.1256.** Little leaf of cotton occurs due to.
Ans. Zn deficiency
- Q.1257.** High lime requirement crops are.
Ans. Soybean & Sugarbeet
- Q.1258.** Problems of soils are highest in.
Ans. Uttar Pradesh
- Q.1259.** Alluvial soils are dominant in.
Ans. Uttar Pradesh
- Q.1260.** If $pH < 8.5$, $EC > 4$ (ds/m). $ESP < 15\%$ the soil will be.
Ans. Saline

- Q.1261.** If $pH > 8.5$, $EC < 4$ (ds/m), $ESP > 15\%$ the soil will be.
Ans. Alkali
- Q.1262.** If $pH < 8.5$, $EC > 4$ (ds/m). $ESP > 15\%$ the soil will be.
Ans. Saline alkali
- Q.1263.** Leaching is used for the treatment of.
Ans. Saline soils
- Q.1264.** Gypsum is used for the reclamation of.
Ans. Alkali soils
- Q.1265.** Lime stone is used for the reclamation of.
Ans. Acidic soils
- Q.1266.** Urea is type of fertilizer.
Ans. Organic fertilizer
- Q.1267.** Highly salt tolerant crops are.
Ans. Barley, Sugarbeet
- Q.1268.** Acid tolerant crop is.
Ans. Rice
- Q.1269.** The soils which have $pH < 4.0$ are known as.
Ans. Cat soils
- Q.1270.** The soils which have organic matter + Na are known as.
Ans. Black alkali soils
- Q.1271.** Potato scab disease favours.
Ans. Alkaline soils
- Q.1272.** According to USDA, Soils have been divided into
Ans. 10 orders
(Entisol, Vertisol, Inceptisol, Acidisol, Mollisol, Spodosol, Alfisol, Ultisol, Oxisol and Histosol)

- Q.1273.** No. of soil orders according to seventh approximation soil classification are
 Ans. 11 orders
- Q.1274.** Major source of Mn
 Ans. Pyrolusite
- Q.1275.** Electrical Conductivity is used to express
 Ans. Salinity of the soil
- Q.1276.** Microorganism have highest biomass in soil
 Ans. Fungi.
- Q.1277.** First country to introduce zero tillage
 Ans. USA.
- Q.1278.** Special kinds of alkaline soils.
 Ans. Takyr and Lunettes
- Q.1279.** Total fertilizer plants in operation in India are
 Ans. 141 Plants
- Q.1280.** Total Urea production plant in operation in India are
 Ans. 29 Plants
- Q.1281.** Total No. of soil testing lab are
 Ans. 1049 labs
- Q.1282.** Total No. of mobile testing labs are
 Ans. 153 labs
- Q.1283.** Fertilizer Control Act (FCO) was introduced in year
 Ans. 1957
- Q.1284.** Central fertilizer pool was started in year
 Ans. 1944
- Q.1285.** Sivaraman Committee was constituted for
 Ans. Fertilizer
- Q.1286.** Fertilizer prices committee was constituted in
 Ans. Jan, 1976

- Q.1287.** Block delivery scheme (BDS) for fertilizer was launched in
 Ans. 1980-81
- Q.1288.** Highest SSP producer plants are in state
 Ans. Rajasthan
- Q.1289.** Highest No. of Nitrogenous fertilizer plants are in state
 Ans. U. P. & Gujarat
- Q.1290.** Highest production of FYM in state
 Ans. Karnataka
- Q.1291.** Soil type vertisol is related to
 Ans. Black soil
- Q.1292.** Indian Institute of Soil Science (IISS) is situated at
 Ans. Bhopal
- Q.1293.** Acid soils are mainly found in the state
 Ans. Kerala State
- Q.1294.** Excess of Ca in soil then availability of phosphorus
 Ans. Decreases
- Q.1295.** C:N ratio for normal soils are-
 Ans. C:N ratio 10:1 (JRF 2012, 2005)
- Q.1296.** Study of soils in relation to higher plants is called-
 Ans. Edaphology (JRF 2012, 2006)
- Q.1297.** Diameter of clay particles is-
 Ans. <0.002mm (JRF 2012)
- Q.1298.** Nutrient essential for energy transformation-
 Ans. P (JRF 2012, 2003, BHU 2009)
- Q.1299.** Soil have highest cation exchange capacity
 Ans. Black clayey soil (BHU, 2011)
- Q.1300.** Soils having pH value < 7.0
 Ans. Acid soil

**STRUCTURE & FUNCTION OF CELL
ORGANELLES CELLS MITOSIS & MEIOSIS &
MANDELLIAN GENETICS**

- Q.1301. Power house of cell.**
Ans. Mitochondria (JRF 2006)
(Term Mitochondria was coined by Carl Brenda in 1898)
- Q.1302. Ploidy level in seeds.**
Ans. Embryo-2n, Endosperm-3n, Testa-2n, Aleuren-2n
- Q.1303. Rediscovery of mendelian principles in the year.**
Ans. 1900
- Q.1304. Chromosomal theory of inheritance (1903) by.**
Ans. Suttan & Bovery
- Q.1305. Term genetics was given by.**
Ans. Betson (1905)
- Q.1306. Chromosome named by.**
Ans. Waldayer (1888)
(Chromosome: A short length of DNA inside a cell's nucleus)
- Q.1306. First use of X-rays as mutation.**
Ans. Muller
- Q.1307. The lines are homozygous and homogenous in nature called as.**
Ans. Pure line
- Q.1308. Allo Hexaploidy found in.**
Ans. Wheat
- Q.1309. Autopolyploidy found in.**
Ans. Sugarcane, cotton, Brassica
- Q.1310. Autotetra ploidy found in.**
Ans. Potato, coffee
- Q.1311. Autotriploidy found in.**
Ans. Banana

- Q.1312. Two lines different for a single locus called.**
Ans. Isogenic line
- Q.1313. If Embryo originates from unfertilized egg process is called.**
Ans. Parthogenesis
- Q.1314. If the development of fruit without fertilization the process is called.**
Ans. Parthenocapry
- Q.1315. Change in the genome with reference to individual chromosomes called as.**
Ans. Aneuloidy
- Q.1316. Repeated crossing of hybrid progeny back to one of its parents called as.**
Ans. Back cross
- Q.1317. If a single gene governing multiple traits it is called as.**
Ans. Pleiotrophy
- Q.1318. Embryo development without fertilization will be called.**
Ans. Apomixis
- Q.1319. First interspecific cross was made by.**
Ans. Thomas Fairchild
- Q.1320. N.E. Borlaug was awarded Noble Prize in.**
Ans. 1970
- Q.1321. Father of Hybrid cotton.**
Ans. C.T. Patel
- Q.1322. First hybrid of rice was developed by.**
Ans. Y.L. Ping (China)

- Q.1323.** First transgenic plant was developed by.
 Ans. Fraley (1983) Tobacco
- Q.1324.** Laws of heredity were first discovered by.
 Ans. Mandel
- Q.1325.** Tift 60 is an important source of male sterility in.
 Ans. Sorghum.
- Q.1326.** The term Germplasm was first used by.
 Ans. Weismann (1834–1914)
- Q.1327.** Centers of origin were first given by.
 Ans. Vavilov
 Vavilov recognized eight main centres of origin
- | | |
|---------------------|------------------|
| 1. China; | 2. Hindustan; |
| 3. Central Asia; | 4. Asia Minor; |
| 5. Mediterranean; | 6. Abyssinia; |
| 7. Central America; | 8. South America |
- Q.1328.** Origin of cultivated plants
 Ans. Alphonse de can dolle (1863) Swiss botanist
- Q.1329.** NBPGR established in.
 Ans. 1976
- Q.1330.** The term genetic resources was coined by.
 Ans. Frankel
- Q.1331.** The term parthogenesis was coined by.
 Ans. Owen
- Q.1332.** Development of seed by self pollination refers to.
 Ans. Autogamy.

- Q.1332.** Often cross pollinated crops are.
 Ans. Cotton, Sorghum, P. Pea
- Q.1333.** Concept of pure line theory was developed by.
 Ans. Jensen (1952)
- Q.1334.** Term heterosis was coined by.
 Ans. Shull (1914)
- Q.1335.** Jagannath is a mutant variety of.
 Ans. Rice
- Q.1336.** A nullisomic individual is represented by.
 Ans. $2n - 2$
- Q.1337.** Chromosome was discovered by.
 Ans Strasburger (1875) (Chromosomes are made up of nucleic acids and proteins)
- Q.1338.** Microtubules were discovered by
 Ans. DeRobertis & Franchi in 1953.
- Q.1339.** DNA was first synthesized by
 Ans. A Kornberg in 1953.
- Q.1340.** RNA was first synthesized by
 Ans. S.Ochoa in 1969.
- Q.1341.** Largest Organelle in Eukaryotic cell
 Ans. Nucleus
- Q.1342.** Term Protoplast was coined by
 Ans. Purkinje in the year 1840
- Q.1343.** Longest Phase of Mitosis is
 Ans. Prophase (ARS 2005)
- Q.1343a.** Golgi complex was described by Camillo Golgi in the year
 Ans. 1822

**ELEMENTARY KNOWLEDGE
OF PHOTOSYNTHESIS; RESPIRATION
AND TRANSPIRATION**

- Q.1344.** Glycolysis occurs in the part of cell.
Ans. Cytoplasm
- Q.1345.** Krebs cycle & ETC occurs in.
Ans. Mitochondria
- Q.1346.** Glycolysis is a type of reaction.
Ans. Anaerobic
- Q.1347.** Total ATP synthesis from one 2×2 molecule of glucose in respiration.
Ans. 36 ATP (Net gain), Gross - 38 ATP
- Q.1348.** Total ATP synthesis in glycolysis is.
Ans. 8 ATP (Net gain - 2ATP)
- Q.1349.** Krebs cycle is also called.
Ans. Citric acid or T.C.A. cycle
- Q.1350.** Final product of glycolysis is.
Ans. Pyruvate
- Q.1351.** Kerbs cycle starts with.
Ans. Acetyl COA & Oxaloacetate
- Q.1352.** Energy content of molecule of glucose is.
Ans. 686 Kcal.
- Q.1353.** Soaking up of water by dry substances due to hydrophillic colloids is
Ans. Imbibition
- Q.1353a.** Respiration liberates
Ans. Metabolic energy as ATP

- Q.1354.** Anaerobic respiration product
Ans. Ethanol and Lactic acid
- Q.1355.** Shrinkage of protoplasm due to outward flow of water in a Hypertonic solution (strong)
Ans. Plasmolysis.
- Q.1356.** Chlorophyll mostly occur in
Ans. Grana
- Q.1357.** Light or hill reaction takes place in.
Ans. Grana of chloroplast
- Q.1358.** Dark reaction or Calvin cycle takes place in.
Ans. Stroma of chloroplast
- Q.1359.** C_3 pathway (Calvin cycle) found in.
Ans. Rice, Wheat, Pea, Gram, Arhar, Soybean
- Q.1360.** C_4 (Hatch Slack pathway) found in.
Ans. Sorghum, Maize, Bajra, Sugarcane
- Q.1361.** CAM (Crassulacean acid metabolism) pathway found in.
Ans. Pineapple, Opuntea, Agave, Cactus, Sisal known as succulent plants
- Q.1362.** Most abundant protein in the world.
Ans. Rubisco
- Q.1363.** First enzyme in CO_2 fixation in C_3 plant.
Ans. Rubisco
- Q.1364.** First enzyme in CO_2 fixation in C_4 plants.
Ans. PEP Carboxylase
- Q.1364.** Highest water use efficiency.
Ans. $CAM > C_4 > C_3$
- Q.1364.** Kranz type leaf anatomy found in.
Ans. C_4 plants
- Q.1364a.** Energy content of glucose molecule is
Ans. 686 kcal.

- Q.1365.** Calvin cycle & Hatch - Slack pathway occurs in.
Ans. Chloroplast
- Q. 1366.** Photosynthesis takes place in
Ans. Chloroplast (90% of total photosynthesis is carried by aquatic plants and 10% by land plants)
- Q.1367.** Photosynthetic rate is highest in.
Ans. C₄ plants
- Q.1368.** Harvest Index in cereals.
Ans. 0.4-0.5
- Q.1369.** Harvest Index in pulses.
Ans. 0.2-0.3
- Q.1370.** First product of photosynthesis.
Ans. 3 PGA
- Q.1371.** Two processes involved in the mechanism of respiration
Ans. Glycolysis and Krebs cycle.
- Q.1372.** Exchange of gases in plants occurs through
Ans. Stomata and lenticels
- Q.1373.** Name two phytohormones that promote growth
Ans. Auxins cytokinins & gibberellins
- Q.1374.** Name two phytohormones that inhibit growth
Ans. Abscisic and ethylene.
- Q.1375.** Optimum temperature for photosynthesis is
Ans. 20-35° C
- Q.1376.** Translocation of nutrient and water through xylem is due to
Ans. Transpiration Pull

(JRF 2011, Raj. PG 2010, BHU PG 2010)

- Q.1376.** Sum of all the chemical transformations taking place in cell or organism
Ans. Metabolism
- Q.1377.** Name the process by which carbon dioxide is converted to simple organic compounds in green plants?
Ans. Carbon dioxide assimilation or fixation
- Q.1378.** What is the full form of CAM?
Ans. Crassulacean Acid Metabolism
- Q.1379.** What is used for the regulation of Calvin Cycle Enzymes ?
Ans. Thioredoxin
- Q.1380.** Cellulose is found particularly in following ?
Ans. Stalks, Stems, Trunks and the woody portions of the plant body.
- Q.1381.** What do you understand by ECM?
Ans. Extracellular matrix which provides the porous pathway for the diffusion of nutrients and oxygen.
- Q.1382.** What are ECM composed of ?
Ans. Interlocking meshwork of Heteropolysaccharides and fibrous proteins.
- Q.1383.** The nitrogen cycle and the citric acid cycle together constitute which cycle ?
Ans. Krebs Bicycle.
- Q.1384.** Where does the Glyoxylate cycle occur ?
Ans. Glyoxysome.
- Q.1385.** Where does the Citric Acid Cycle occur ?
Ans. Mitochondria.
- Q.1385a.** In injured plants respiration
Ans. Increases

**STRUCTURE AND FUNCTIONS OF CARBOHYDRATES,
PROTEINS, NUCLEIC ACIDS, ENZYMES
AND VITAMINS**

- Q.1386.** Which company have patent of Bt gene for cotton crop
Ans. Monsanto Ltd
- Q.1387.** The vegetable crop which is under approval for Bt technology in India is
Ans. Brinjal
- Q.1388.** Disturbance in digestive system is due to the deficiency of
Ans. vitamin B₁
- Q.1389.** Prolong blood clotting time occurs due to the deficiency of
Ans. Vitamin K
- Q.1390.** Phylloquinone is known as vitamin
Ans. Vitamin K
- Q.1391.** Cresco graph is used for measuring
Ans. Plant Growth
- Q.1392.** Type of Bt gene inserted in cotton
Ans. Cry 1 Ac
- Q.1393.** Glucose is which type of sugar.
Ans. Monosaccharides
- Q.1394.** Sugar which is sweetest among all sugars.
Ans. Fructose
- Q.1395.** Disaccharides are:
Ans. Maltose, Lactose, Sucrose, Cellobiose
- Q.1396.** Non reducing sugar is.
Ans. Sucrose
- Q.1397.** Disaccharides have molecular formula
Ans. C₁₂ H₂₂ O₁₁

- Q.1398.** Which sugar is largely found in germinating seeds?
Ans. Maltose
- Q.1399.** Lactose is a combination of.
Ans. Glucose + Galactose
- Q.1400.** Glycogen is present only in.
Ans. Animal cells
- Q.1401.** Pectin is normally present in.
Ans. Cell wall
- Q.1402.** Name 'Protein' was suggested by.
Ans. Berzelius
- Q.1403.** Proteins are the polymer of.
Ans. Amino acid
- Q.1404.** Collagen is found in.
Ans. Muscle protein
- Q.1405.** Keratin is found in.
Ans. Hair, wool & nails
- Q.1406.** Fibroin is found in.
Ans. Silk
- Q.1407.** Elastin is found in.
Ans. Insect wings
- Q.1408.** Regulatory proteins are?
Ans. Enzymes
- Q.1409.** Term protein was coined by
Ans. Moulder in 1840.
- Q.1410.** Transport protein.
Ans. Myoglobin, Hemoglobin's
- Q.1411.** First enzyme was found initially from.
Ans. Yeast
- Q.1412.** Enzymatic activity was first discovered by.
Ans. Buchner

- Q.1413.** It is a very longed chained glucose polymer important in structural support of plants
 Ans. Cellulose.
- Q.1413a.** Cellulose contains
 Ans. More than 50% of plants total carbons.
- Q.1414.** The term Enzyme was coined by.
 Ans. W. Kutins
- Q.1415.** Lock & Key model was proposed by.
 Ans. Fisher
- Q.1414.** Term vitamin was introduced by.
 Ans. Casimir Funk (1884-1967)
- Q.1415.** Water soluble vitamins.
 Ans. Vit. B complex & vit. C, & B₆
- Q.1416.** Fat soluble vitamins.
 Ans. Vit. A, D, E, K
- Q.1417.** Xerophthalmia and night blindness is due to.
 Ans. Vit. A (retinal)
- Q.1418.** Ariboflavinosis (cracks on skin) is due to.
 Ans. B₂ (riboflavin) deficiency
- Q.1419.** Anemia is due to the deficiency of.
 Ans. Vit. B₁₂ (cyanocobalomin)
- Q.1420.** Bond that joins amino acids
 Ans. Carboxyl
- Q.1421.** Pellagra (Black tongue) is due to the deficiency of.
 Ans. B₆ (Niacin)
- Q.1422.** A group of enzymes highly associated with DNA to form nucleosomes
 Ans. Histones
- Q.1423.** Scurvy is due to.
 Ans. Vit. C (Ascorbic acid) deficiency

- Q.1424.** Rickets is due to.
 Ans. Vit. D (Calciferol) deficiency
- Q.1425.** Sterility is due to.
 Ans. Vit. E (α Tocopherol) deficiency
- Q.1426.** Useful enzyme to remove oxidative stress
 Ans. SOD in plants
- Q.1427.** Beri Beri is due to.
 Ans. Thiamine (Vit. B₁) deficiency
- Q.1428.** Nucleoside + Phosphate group are called as.
 Ans. Nucleotide
- Q.1429.** Bacteriophages are.
 Ans. Single stranded DNA
- Q.1430.** The most abundant form of RNA is known as.
 Ans. t-RNA (80%)
- Q.1431.** The scientist who used the word cell.
 Ans. Robert Hook
- Q.1432.** The scientist who used the word nucleus.
 Ans. Robert Brown
- Q.1433.** Cell theory was given by.
 Ans. M. Schleiden & Schwann
- Q.1434.** Free living N fixing bacteria is.
 Ans. Azotobacter
- Q.1435.** Stem and root nodules are found in.
 Ans. Sesbania rostrata
- Q.1436.** Crossing over can be seen in the stage.
 Ans. Pachytene
- Q.1437.** An organic compound which build protein molecules is
 Ans. Amino acid
- Q.1438.** Proteome
 Ans. Sum of all the protein functioning in cell.

Q.1439. What is the energy storage in plants ?

Ans. Starch

Q.1440. Vitamin A is a derivative of?

Ans. Retinoic Acid.

Q.1441. Name the products which are rich in Vitamin A?

Ans. Eggs, whole milk, fish liver oil and butter along with other dietary products.

Q.1442. From what products do we obtain Vitamin E?

Ans. Eggs and vegetable oils and wheat gram.

Q.1443. Name the scientists who discovered Vitamin K?

Ans. Edward A Doisy and Henrik Dam

Q.1445. Where is Vitamin K found?

Ans. Green plant leaves i.e. (Spinach leaves, mustard green, broccoli)

Q.1446. What is the role of Vitamin K?

Ans. It helps in the formation of active prothrombin, a blood plasma protein essential in blood clotting.

Q.1447. Deficiency of Vitamin K can lead to?

Ans. It can lead to uncontrolled bleeding. It is not commonly seen in adults but can be seen in infants.

Q.1448. Name the products that are rich in Vitamin C?

Ans. Bell peppers, dark leafy greens, kiwis, broccoli, berries, citrus fruits, tomatoes, peas, and papayas.

Human genome contains 24000 to 25,000 genes and human body is composed of more than 200 different kinds of specialized cell types.

PLANT BIOTECHNOLOGY AND TISSUE CULTURE

Q.1449. Biotechnology is

Ans. Applied use of molecular biology and recombinant DNA Technology

Q.1450. Term Biotechnology was coined by

Ans. Karl Ereky (1919) *(JRF 2016)*

Q.1451. Totipotency is

Ans. Capability of an isolated single cell to multiply and differentiate into multicellular organism.

Q.1452. RNA (ribonucleic acid) is a

Ans. Molecule similar to DNA, which helps in process of decoding genetic information carried by DNA. It contains four bases that are AUGC.

Q.1453. Methods used for determination of gene sequences

Ans. 1. Maxam & Gilbert method
2. Sanger dideoxy nucleotide synthetic method

Q.1454. Extrachromosomal genetic element found within bacterial cells and replicates independently of chromosomal DNA.

Ans. Plasmids

Q.1455. DNA (deoxyribonucleic acid)

Ans. A molecule which encodes genetic information. It contains four bases AUGC.

Q.1456. Double haploids are

Ans. Individuals derived from haploid gametes and carry two identical chromosomes

Q.1457. Micropropagation is

Ans. In vitro multiplication of plants from a small tissue explant

- Q.1458. What is Electroporation**
 Ans. A technique which uses electric discharge to produce pores on cell membrane for intake of recombinant DNA
- Q.1459. In vitro is a**
 Ans. Biochemical process or reaction taking place in a test tube (in lab).
- Q.1460. In vivo is a**
 Ans. Biological process or reaction taking place in a living cell or organism.
- Q.1461. E-coli is a**
 Ans. Bacterium used in genetic engg. for its small size.
- Q.1462. *Agrobacterium rhizogenes***
 Ans. Soil bacteria often possesses R_1 plasmids and cause the hairy root system in plants
- Q.1463. *Agrobacterium tumefaciens***
 Ans. Soil bacteria often possesses T_1 plasmid
- Q.1464. Allele is**
 Ans. One of a number of different forms of a gene.
- Q.1465. Anticodon**
 Ans. Triplet of nucleotides in transfer of RNA
- Q.1466. Embryogenesis is a**
 Ans. Process of formation of somatic embryo's from callus
- Q.1466. Double haploids are**
 Ans. Individuals derived from haploid gametes and carry two identical chromosomes
- Q.1467. Gene cloning is**
 Ans. Isolating a gene and the process of producing identical copies.
- Q.1468. Crossing of plants through fusion of somatic cell is**
 Ans. Somatic hybridization

- Q.1469. Chromomere is a**
 Ans. Serially aligned beads or granules of eukaryotic chromosome from local coiling of continuous DNA thread and is visible on a chromosome during prophase of meiosis and metosis.
- Q.1470. DNA ligase is**
 Ans. An enzyme that closes nicks or discontinuities in one strand of double stranded DNA by creating a bond.
- Q.1471. DNA first synthesised by**
 Ans. Arthur Kornberg (1956)
- Q.1472. Father of genetic engineering**
 Ans. Paul Berg
- Q.1473. Gene bank is a**
 Ans. Group of genes or cloned DNA fragments
- Q.1474. Marker is**
 Ans. A sequence of bases at a unique physical location in genome
- Q.1475. Molecular markers are**
 Ans. DNA fragments used as finger print in identification of any organism or species.
- Q.1476. RFLP**
 Ans. Restriction fragment length polymorphism
- Q.1477. RAPD**
 Ans. Random amplified polymorphic DNA
- Q.1478. STMS**
 Ans. Sequence tagged microsatellite sites
- Q.1479. SNP**
 Ans. Single or simple nucleotide polymorphism
- Q.1480. PCR**
 Ans. Polymerase chain reactions

Q.181. PCR was developed by

Ans. Dr. Karl Mullis in year 1980 and won Nobel Prize in 1993

Q.1482. PCR technique uses

Ans. Bacterial enzymes for in vitro amplification of DNA

Q.1483. DNA cloning

Ans. The ability to construct recombinant DNA molecules and maintain them in cells.

Q.1484. PCR techniques provides

Ans. Several copies of specific DNA sequence by repeated

Q.1485. Genetic map is a rounds of DNA replication in vitro

Ans. Map of genome showing relative positions of genes and or markers on chromosomes

Q.1486. Gene pyramiding is

Ans. Technique of combining 2 or more major genes

Q.1487. Genomics is

Ans. Science of identifying the sequence of DNA in species

Q.1488. First sequenced plant is

Ans. *Arabidopsis thaliana* (a weed)

Q.1489. GUS (β -glucuronidase)

Ans. Gene from *Escherichia coli*. It is used in transformation as a reporter.

Q.1490. Nucleic Acids are

Ans. Family of molecules that include DNA and RNA molecules

Q.1491. Germplasm is

Ans. Genetic background of species

Q.1492. Transgenics plants are

Ans. Genetically modified organisms

Q.1493. Transgenics or GMO are

Ans. Organisms with gene or genetic construct introduced by molecular or recombinant DNA.

Q.1494. Transformation is

Ans. A process by which genetic material carried by a species cell is altered by incorporation of exogenous DNA in genome

Q.1495. Transcription is

Ans. Process during which the information in a sequence of DNA is used to construct m-RNA

Q.1496. Golden rice was developed by

Ans. Ingo Protrykus and Peter Bayer

Q.1497. Golden rice provides

Ans. Higher β -carotene over normal rice

Q.1498. β -Carotene is

Ans. Precursor of Vitamin-A

Q.1499. β -carotene-indica rice was developed by

Ans. Indian scientists

Q.1500. Project on Indian Mustard oil with higher β -carotene is initiated by

Ans. TERI (Tata Energy Research Institute)

Q.1501. Biotechnology related to Agriculture is also called

Ans. Green biotechnology

Q.1502. Plant tissue culture is

Ans. Multiplication of cell of large number of plants placed in appropriate environment conditions with required nutrients.

Q.1503. Virus that live in bacteria is

Ans. Bacteriophage

- Q.1504.** Bacteriophage were first observed by
 Ans. Ruska (1940) Luria and Anderson (1942)
- Q.1505.** m-RNA is primarily used for
 Ans. Transcription of DNA.
- Q.1506.** Thread like bodies that carry gene
 Ans. Chromosomes
- Q.1507.** Transplanting a cell, tissue or organ from one nutrient medium to another
 Ans. Subculture
- Q.1508.** Stages in micropropagation
 Ans. D. Preparative
1. Initiation of aseptic culture
 2. Shoots proliferation stage
 3. Root development stage
 4. Hardening stage
- Q.1509.** Hybridization is
 Ans. Crossing of two genotypically different plants. Genes from both plants are brought together
- Q.1510.** m-RNA
 Ans. Made up of single stranded molecule, life span is 2 min. at 37°C in E-coli
- Q.1511.** The insoluble RNA that constitutes the largest part of cellular RNA (About 80%).
 Ans. r-RNA
- Q.1512.** Genome is
 Ans. Complete set of chromosomes found in the gamete of true diploid (True diploid are individual with two set of chromosomes)

- Q.1513.** Explant is
 Ans. An excised fragment of a tissue or an organ used to start tissue culture
- Q.1514.** A group of adjacent genes that are identical or related.
 Ans. Gene cluster
- Q.1515.** Process by which a cell monolayer or a plant explant is transferred without subdivision into a fresh medium
 Ans. Reculture
- Q.1516.** A pheromone is
 Ans. A small molecule secreted by one mating type of an organisms in order to interact with a member of the opposite mating type.
- Q.1517.** DNAs consist of repetitions of extremely short units. (typically < 10 bp).
 Ans. Microsatellite
- Q.1518.** The distance between two genes that recombine with a frequency of 1%.
 Ans. Map unit
- Q.1519.** Enzymes that attack bonds in DNA.
 Ans. DNAases
- Q.1520.** Technique of genetic engineering by which a gene sequence with many identical copies is replicated
 Ans. Gene-cloning
- Q.1521.** DNA-synthesizing enzyme required specifically for replication.
 Ans. DNA replicase

- Q.1522.** Molecular scissors used in genetic engg. is
 Ans. Restriction endonuclease
- Q.1523.** Enzyme used in polymerase chain reaction is
 Ans. Taq-polymerase
- Q.1524.** What does abbreviation (*Bt*) means
 Ans. *Bacillus thuringiensis*
- Q.1525.** *Bt* was discovered by
 Ans. Shigetane Ishiwatari
- Q.1526.** Which *Bt* crop approval was revoked in 2001
 Ans. Potato
- Q.1527.** Major *Bt* crop grown in world
 Ans. Cotton and Maize
- Q.1528.** *Bt* was discovered in year
 Ans. 1901
- Q.1529.** A segment of DNA that codes for a specific character is called.
 Ans. Gene
- Q.1530.** Indole acetic acid inhibits growth of the
 Ans. Roots
- Q.1531.** Term bolting refers to
 Ans. Internodal elongation
- Q.1532.** Height of sugarcane plant can be increased by application of
 Ans. Gibberellins
- Q.1533.** Person responsible for regenerating plant from protoplant
 Ans. Tukebl
- Q.1534.** Term DNA Fingerprinting was coined by
 Ans. Prof A. Jeffrey
- Q.1534a.** Genetic Engineering Appraisal Committee Constituted under the
 Ans. Environment Protection Act.

MAJOR PEST & DISEASE OF RICE, WHEAT, COTTON, CHICKPEA, SUGARCANE, AND THEIR MANAGEMENT

- Q.1535.** For which insect group the *Bt* cotton is resistant
 Ans. Lepidoptera Specially (*Heliothis* & *Spodoptera*)
- Q.1536.** Most damaging insect of Lepidoptera group insect is
 Ans. *Heliothis armigera*
- Q.1537.** Serious Pest of *Bt* cotton
 Ans. Aphid & Jassid
- Q.1538.** Phorate 10 G is marked by which color triangular sign for poison
 Ans. Red color
- Q.1539.** DBM is a serious pest of
 Ans. Cabbage
- Q.1540.** First chemical pesticide used in India was
 Ans. DDT
- Q.1541.** DDT was banned due to
 Ans. Prolong persistence in soil
- Q.1542.** Rice stem borer (*scirpophaga incertulas*) is a
 Ans. Monophagous
- Q.1543.** *Trichogramma* is a
 Ans. Egg parasitoid
- Q.1544.** Silver shoot or onion leaf is caused by
 Ans. Gall midge
- Q.1545.** Vector of Rice tungro is
 Ans. Green Leaf hopper (*Nephotettix* spp.)

- Q.1546. Vector of Grassy stunt disease.**
 Ans. Brown plant hopper (*Nilaparvata lugens*)
- Q.1547. Chaffy grains with black spot is due to.**
 Ans. Gundhi bug (*Leptocorisa acuta*)
- Q.1548. Family of Gundhi bug is.**
 Ans. Alydidae
- Q.1549. Gundhi bug caused on the stage.**
 Ans. Early Milking stage
- Q.1550. Ufra disease of rice is due to.**
 Ans. *Ditylenchus angustus* (Butler 1913)
- Q.1551. White grub is a.**
 Ans. Beetle, Polyphages
- Q.1552. Serious pest of wheat.**
 Ans. White grub & termite
- Q.1553. Ear cockle is due to**
 Ans. *Anguina tritici* (nematode)
- Q.1554. Tundu/yellow ear rot disease is due to.**
 Ans. *Anguina tritici* + *Corynebacterium tritici*
- Q.1555. Control of tundu disease.**
 Ans. Hot water treatment 50°C for 2 hrs. use of seed free from nematode galls or certified seeds.
- Q.1556. Wheat stem borer sesamia inferns attack in.**
 Ans. Night
- Q.1557. Name of rice yellow stem borer.**
 Ans. *Scirpophaga incertulas*
- Q.1558. Highest consumption of pesticide in crop.**
 Ans. Cotton (54%)
- Q.1559. Hopper burn in cotton is due to.**
 Ans. *Amrasca biguttula*

- Q.1560. Family of cotton white fly.**
 Ans. Aleyrodidae
- Q.1561. Vector of cotton leaf curl virus.**
 Ans. *Bemisia tabaci*
- Q.1562. Flaring of squares in cotton is due to.**
 Ans. Spotted bollworm (*Earias vitella*)
- Q.14563. Rosetting of flowers due to.**
 Ans. Pink bollworm (*pectinophora gossypiella*)
- Q.1564. Double seed formation is due to.**
 Ans. Pink bollworm
- Q.1565. Large circular bore holes with faecal pellets is the symptoms of.**
 Ans. American bollworm (*Helicoverpa armigera*)
- Q.1566. *Dysdercus cingulatus* is known as.**
 Ans. Red cotton bug
- Q.1567. Bt formulation is used for.**
 Ans. Early instars of bollworms
- Q.1568. *Helicoverpa* and *Agrotis ypsilon* is the serious pest of.**
 Ans. Chickpea
- Q.1569. Greasy cut worm attack in.**
 Ans. Night
- Q.1570. Scientific name of sugarcane shoot borer.**
 Ans. *Chilo infuscatellus*
- Q.1571. Bunchy top appearance in sugarcane is due to.**
 Ans. Top borer (*Scirpophaga excerptalis*)
- Q.1572. Family of Top borer.**
 Ans. Pryalidae

- Q.1573. Family of shoot borer.**
Ans. Crambidae
- Q.1574. *Pyrilla perpusilla* (Fam. Lophopidae) is a.**
Ans. Leaf hopper
- Q.1575. Biological control of borers.**
Ans. *Trichogramma Japonicum*
- Q.1576. Destructive Insect Pest Act (DIP) passed.**
Ans. 1914
- Q.1577. Insecticide act was passed in.**
Ans. 1968
- Q.1578. Pest that occur most frequently on cultivated crops.**
Ans. Regular pest
- Q.1579. Pest that occur in a few isolated localities.**
Ans. Sporadic pest
- Q.1580. Pest that occurs in same area year after year.**
Ans. Endemic pest
- Q.1581. Pest that occurs in an area in severe form.**
Ans. Epidemic pest
- Q.1582. Central Plant Protection Training Institute.**
Ans. Hyderabad
- Q.1583. Safest insecticide for honeybee.**
Ans. Endosulfan
- Q.1584. Pest population should be kept below.**
Ans. Economic threshold level
- Q.1585. Serious pest of Rice.**
Ans. Yellow stem borer
- Q.1586. What is the sequence of coating of seed by insecticide, fungicide & Rhizobium.**
Ans. Fungicide + Insecticide + Rhizobium

- Q.1587. Insect-growth regulators in pest management are :**
Ans. (i) Ecdysoids, (ii) Juvenoids,
(iii) Anti JH, (iv) Chitin
- Q.1588. Term integrated pest management was propounded by**
Ans. Geiger & Clark (1961)
- Q.1589. Wiggelworth**
Ans. Father of Insect Physiology
- Q.1590. H.S. Pruthi was the**
Ans. First plant protection adviser to the Govt. of India.
- Q.1591. Father of modern plant pathology in India**
Ans. J.F. Dastur (1886-1971)
- Q.1592. Exanthema disease is caused by**
Ans. Bacteria (Ph.D IARI, JRF 2010)
- Q.1593. Eco-friendly insecticide is**
Ans. Nimbecidine
- Q.1594. Insecticide can be safely used on vegetables**
Ans. Malathion
- Q.1594. Pathogen is**
Ans. Any agent that causes pathos (ailment or suffering)
- Q.1596. Parasite is**
Ans. Any organism which desire the material of their needs of growth from living plants.

DISEASES OF IMPORTANT CROPS

1. Rice

- Q.1597.** Blast disease is due to.
Ans. Pyricularia Oryzae (airborne)
- Q.1598.** Brown spot disease is due to.
Ans. Helminthosporium Oryzae (seed borne)
- Q.1599.** Bacterial blight disease is due to.
Ans. Xanthomonas Campestris pv. oryzae
- Q.1600.** Kresck symptom found in.
Ans. Bacterial blight
- Q.1601.** Foot rot disease due to.
Ans. *Gibberella fujikuroi*
- Q.1602.** Sheath blight disease is due to.
Ans. *Rhizoctonia solani*
- Q.1603.** Udabatta disease due to.
Ans. *Ephelis oryzae*
- Q.1604.** Vector of rice tungro virus.
Ans. Green leaf hopper (*Nephotettik virescens*)
- Q.1605.** Sheath rot disease is due to
Ans. *Sarocladium oryzae*
- Q.1605.** Stem rot disease is due to
Ans. *Sclerotium oryzae*
- Q.1607.** Khaira disease of rice is due to
Ans. Zinc deficiency
(ARS 2010)

2. Wheat

- Q.1608.** Black stem rust disease is due to.
Ans. *Puccinia graminis tritici*
- Q.1609.** Brown rust is due to.
Ans. *Puccinia graminis recondita*
- Q.1610.** Yellow rust is due to.
Ans. *P. graminis striformis tritici*
- Q.1611.** Loose smut is due to.
Ans. *Ustilago tritici*, (Internally seed borne) (ARS 2010)
- Q.1612.** Hill bunt is due to.
Ans. *Tilletia foetida*
- Q.1613.** Karnal bunt is due to.
Ans. *Neovossia indica*
- Q.1614.** Flag smut is due to.
Ans. *Urouystis gamines*
- Q.1615.** Molya disease is due to.
Ans. *Heterodera avcnae*
- Q.1616.** Vitavax & hot treatment is used for.
Ans. Loose smut
- Q.1617.** Ear cockle disease is due to
Ans. *Argina tritici* (nematode) (ARS-10, Ph.D-10 & BHU-12)
- Q.1618.** Powdery Mildew is due to
Ans. *Erysiphegraminis f.sp. tritici* (powdery growth)

3. Cotton

- Q.1619. Wilt disease is due to.
Ans. *Fusarium oxysporum*
- Q.1620. Root rot is due to.
Ans. *Microphomina phaseoli*
- Q.1621. Black arm or bacterial blight is due to.
Ans. *Xanthomonas compestris*
- Q.1622. Root rot disease is due to
Ans. *Rhizoctonia bataticola*
- Q.1623. Anthracnose disease is due to
Ans. *Colletotrichum capsici*
- Q.1624. Leaf blight is due to
Ans. *Alternaria macrospora*
- Q.1625. Grey mildew or dahiya disease is due to
Ans. *Ranulariaareola*

4. Sugarcane

- Q.1626. Red rot is due to.
Ans. *Colletotrichum falcatum*
- Q.1627. Smut is due to.
Ans. *Ustilago scitaminea*
- Q.1628. Gummy disease is due to.
Ans. *Xanthomonas campestris, Pv. vascularum*
- Q.1629. Red stripe disease is due to.
Ans. *Pseudomonas rubrilineans*
- Q.1630. Grassy shoot is due to.
Ans. MLO
- Q.1631. Ratoon stunting disease is due to
Ans. Ratoon stunting virus

5. Chick Pea

- Q.1632. Wilt disease is due to.
Ans. *Fusarium oxysperium sp. ciceri*
- Q.1633. Blight is due to.
Ans. *Asehochyta rabei*
- Q.1634. Mancozeb, Zenab, Thiram are.
Ans. Dithio carbamates
- Q.1635. PMA (Agrosan G N) is a.
Ans. Organomercurials
- Q.1636. Endosulfan is a.
Ans. Chlorinated hydrocarbons
- Q.1637. Aldicarb (Temik), Carbaryl is.
Ans. Carbamets & their thio salts
- Q.1638. Ceresan & Aretan are.
Ans. Organomercurials fungicide

6. Groundnut

- Q.1639. Stem rot disease is due to
Ans. *Sclerotium rolfsii*
- Q.1640. Collar rot disease is due to
Ans. *Aspergillus niger*
- Q.1641. Tikka disease is due to
Ans. *Cercospora personata & C. arachidicola*

7. Maize

- Q.1642. Seed rot seedling blight is due to
Ans. *Phythium appani dermatum*
- Q.1643. Charcol rot is due to
Ans. *Macrophomina phaseoil*

**IMPORTANT RURAL DEVELOPMENT PROGRAMS
IN INDIA; ORGANISATIONAL SET UP OF
AGRICULTURAL RESEARCH**

- Q.1644.** In which year was the word 'extension' used for the first time?
Ans. 1873.
- Q.1645.** Father of Extension education
Ans. James Stuart
- Q.1646.** Father of Extension in India
Ans. K. N. Singh
- Q.1647.** Model villages given by.
Ans. Daniel Hamilton (1903)
- Q.1648.** Rural reconstruction Institute started.
Ans. Shanti Niketan-1921
- Q.1649.** Marathandan project was given by.
Ans. Spencer Hatch-1921
- Q.1650.** Gurgaon Experiment was given by.
Ans. F.L. Brayne-1921
- Q.1651.** Sevagram project was given by.
Ans. Mahatma Gandhi (1929)
- Q.1652.** Indian village service was given by.
Ans. A.T. Moscher & B.N. Gupta
- Q.1653.** Firka Development Scheme was given by.
Ans. T. Prakashan (1946)
- Q.1654.** Mazdoor Manzil was given by.
Ans. S. K. Dey (1947)
- Q.1655.** Grow more food campaign was given in?
Ans. 1948

- Q.1656.** Etawah pilot project was started by
Ans. Albert Mayer (1948)
- Q.1657.** Grow more food campaign enquiry committee was founded in the year?
Ans. 1952
- Q.1658.** (C.D.P.) community development project was started in
Ans. 1952
- Q.1659.** (NES) National Extension Service.
Ans. 1953 (S. K. Dey)
- Q.1660.** Panchayati Raj was started.
Ans. 1957-1958
- Q.1661.** First state to adopt Panchayati Raj.
Ans. Rajasthan (Nagaur Dist.)
- Q.1662.** (IADP) Intensive Ag. District programme was started in the year.
Ans. 1960
- Q.1663.** (IAAP) Intensive Ag. Area programme started in
Ans. 1964
- Q.1664.** (ICDP) Intensive Cattle Development project was started in
Ans. 1964
- Q.1665.** High yielding varieties programme.
Ans. 1966
- Q.1666.** (MCP) Multiple Cropping Programme.
Ans. 1966
- Q.1667.** (MKP) Minikit Programme for Rice.
Ans. 1971
- Q.1668.** (SFDA) Small Farmer's Development Agency.
Ans. 1970

- Q.1669. (MFAL) Marginal Farmers and Agricultural labors Programme started in the year.**
 Ans. 1970
- Q.1670. (DPAP) Drought Prone Area Programme.**
 Ans. 1970
- Q.1671. (MNP) Minimum Needs Programme.**
 Ans. 1972
- Q.1672. (T & V) Training & Visit Programme was started by.**
 Ans. Daniel Boner (1974)
- Q.1673. Name the state that adopted (T & V) first**
 Ans. Rajasthan
- Q.1674. K.V.K. was recommended by.**
 Ans. Mohan Singh Mehta Committee (1974)
- Q.1675. First K.V.K. was established at.**
 Ans. TNAU at Pondicherry (1974)
- Q.1676. (CAD) Command Area Development Programme was established in?**
 Ans. 1974
- Q.1677. (IRD) Integrated Rural Development Programme was established/started is?**
 Ans. 1979
- Q.1678. (TRYSEM) Training Rural Youth for self Employment programme was started in ?**
 Ans. 1979
- Q.1679. (NREP) National Rural Employment Programme was started in?**
 Ans. 1980
- Q.1680. (NARP) National Agricultural Research Project was started in?**
 Ans. 1980

- Q.1681. District Rural Development Agency (DRDA) was brought up in**
 Ans. 1980
- Q.1682. (NAEP) National Agricultural Extension Project was started in?**
 Ans. 1983
- Q.1683. (RLEGP) Rural Landless Employment Guarantee Programme was started in?**
 Ans. 1983
- Q.1684. (JRY) Jawahar Rozgar Yojna.**
 Ans. 28 April, 1989
- Q.1685. (IVLP) Institute Village Linkage Programme.**
 Ans. 1994
- Q.1686. (MSY) Mahila Samrudhi Yojana.**
 Ans. 1993
- Q.1687. (PMRY) Prime Minister Rozgar Yojana.**
 Ans. 1994
- Q.1688. (NATP) National Agricultural Technology project.**
 Ans. 1999
- Q.1689. (JGSY) Jawahar Gram Samuridhi Yojana.**
 Ans. 1999
- Q.1690. (SGSY) Swaran Jyanti Gram Swarojgar Yojana.**
 Ans. 1999
- Q.1691. Jan Shri Bima Yojana was started in the year**
 Ans. 2000
- Q.1692. Pradhan Mantri Jal Samvardhan Yojana was started**
 Ans. in the year 2002

- Q.1693.** Pradhan Mantri Gram Sarak Yojana was started
 Ans. in the year 2000
- Q.1694.** Vishesh Krishi Upaj Yojana to promote exports of fruit, vegetables, and Minor forest produce
 Ans. 2004
- Q.1695.** IRDP, TRYSEM, DWCRA, SITRA merged into.
 Ans. SGSY
- Q.1697.** Lab to land programme started.
 Ans. 1 June 1979 (on the occasion of ICAR Golden Jubilee celebrations)
- Q.1698.** Integration of all programmes in K.V.K.
 Ans. 1 April, 1992
- Q.1699.** First Agricultural University established in the year
 Ans. 1960, Uttarakhand, Pantnagar
- Q.1700.** Establishment of MANAGE.
 Ans. 1986, Hyderabad
- Q.1701.** Royal commission on Agriculture.
 Ans. 1928
- Q.1702.** FISCAL commission.
 Ans. 1949
- Q.1703.** Land care programme.
 Ans. 1990 Australia
- Q.1704.** N.S.S. was founded in
 Ans. 1969
- Q.1705.** First rural youth programme.
 Ans. 1920 (Sri Niketen)
- Q.1706.** Indira Mahila Yozana.
 Ans. 1995

- Q.1707.** (N.E.S.) National Extension Service.
 Ans. 1953
- Q.1708.** (PPTD) Pilot Project for Tribal Development.
 Ans. 1972-73
- Q.1709.** Antuoyadaya Yojana.
 Ans. 2 Oct. 1977
- Q.1710.** (N.S.C.) National seed corporation founded.
 Ans. 1963 (Delhi)
- Q.1711.** (DPAP) Drought Prone Area Programme.
 Ans. 1970-71 (Pant Nagar)
- Q.1712.** Indian society of Agronomy.
 Ans. 1955
- Q.1713.** Indian society of Soil Science.
 Ans. 1934
- Q.1714.** First Department of Agriculture established.
 Ans. 1881
- Q.1715.** First Irrigation commission appointed.
 Ans. 1901
- Q.1716.** Indian central sugarcane committee.
 Ans. 1944
- Q.1717.** Indian central cotton committee was constituted.
 Ans. 1921
- Q.1718.** National commission of Agriculture set up by Govt. of India.
 Ans. 1970
- Q.1719.** Imperial Lac Research Institute (Ranchi).
 Ans. 1925
- Q.1720.** 1st five year plan started.
 Ans. 1951-1956

- Q.1721. Food corporation of India (F.C.I.)**
Ans. 1970
- Q.1722. Nationalization of major Banks.**
Ans. 1969
- Q.1723. NABARD came into existence.**
Ans. 1980
- Q.1724. National Agriculture Science Museum is located at**
Ans. New Delhi
- Q.1725. Firka Development Scheme launched under the guidance of**
Ans. Sh. T. Prakasham
- Q.1726. Sampooran Grammeen Rojgar Yojana was started**
Ans. in the year 2001
- Q.1727. Agricultural Research Services were established by**
Ans. M. S. Swami Nathan
- Q.1728. Panchayati Rajya was first introduced in the state**
Ans. Tamil Nadu
- Q.1729. The person associated with Community Development Programmes (1952)**
Ans. S. K. Dey
- Q.1730. Food and Agricultural Organisation is situated at**
Ans. Rome (FAO was founded on 16 Oct. 1945 in Quebec city, Quebec, Canada. In 1951 its head quarters were moved to Rome, Italy).
- Q.1731. NREGA (National Rural Employment Guarantee Act) now MGNREGA**
Ans. Employment Guarantee Program for the people below poverty line (ARS/NET 2009)

- Q.1732. Mass schemes were started on**
Ans. 2nd October 1952.
- Q.1733. The right approach of agricultural extension should be.**
Ans. Bottom up approach.
- Q.1734. The term 'Vision' in India in 'Vision-2020' by Dr. A.G.P. Abdul Kalam mean**
Ans. Articulation of desired end results.
- Q.1735. The ratio of central and state government in NREGA scheme**
Ans. 50 : 50
- Q.1736. Youths are being trained every year under TRYSEM?**
Ans. Two Lakh
- Q.1737. Who and when started the Marthendum project?**
Ans. Dr. Spensar Hatch in year 1928.
- Q.1738. Khadi Village Industry Commission was formed?**
Ans. In 1968-69.
- Q.1739. In which year the Marginal Farms Development Programme (MFDP) was started in India ?**
Ans. 1970-71.
- Q.1740. Agricultural Labour Development Programme was established in the year**
Ans. 1970-71
- Q.1741. The rural development of the village programme?**
Ans. R. N. Tagore.
- Q.1742. From where the extension education originated?**
Ans. Japan.

- Q.1743.** Intensive Agriculture District Programme was established?
 Ans. In the year 1963.
- Q.1744.** In Farm Management most important unit is
 Ans. Production unit
- Q.1745.** Applied Nutrition programme in india was started
 Ans. 1963
- Q.1746.** The state which was electrified ruraly first is
 Ans. Haryana.
- Q.1747.** ISOPOM: (Integrated Scheme of Oilseeds, Pulses, Oil palm and Maize) was started in the year
 Ans. 2004
- Q.1748.** ICDP (Intensive Cotton Development Programme) was started in the year
 Ans. 2003-04.
- Q.1749.** Total number of KVKs in india till Dec., 2013 is
 Ans. 637
- Q.1750.** National Food Security Mission (NFSM) was started during the year.
 Ans. 2007-2008
- Q.1751.** Rashtriya Krishi Vikas Yojana was in the year.
 Ans. 2007-2008 with 100% grant by Central Govt.
- Q.1752.** Which year was declared as "Food security and quality year" by Govt. of India?
 Ans. 2008-2009.
- Q.1753.** Imperial Biological laboratory was established in year
 Ans. 1889

- Q.1754.** Foundation of agriculture research in year
 Ans. 1890
- Q.1755.** Foundation of agriculture research laid by
 Ans. Dr. J.A. Voelcker
- Q.1756.** First chairman of Royal commission of Agriculture
 Ans. Lord Linlithgow
- Q.1757.** Great Bengal famine occurred in year
 Ans. 1943
- Q.1758.** 3 Tier Panchayat Raj given by
 Ans. Balwant Rai Mehta
- Q.1759.** First Agriculture University pattern was based on
 Ans. Land Grant System of U.S.A.
- Q.1760.** Blue print for establishment of SAU's was prepared by
 Ans. Dr. Ralp W. Cummings
- Q.1761.** The mean of MFLAP
 Ans. Marginal Farmer Agricultural Laborers Programme (1971)
- Q.1762.** ARS was started in year
 Ans. 1973
- Q.1763.** ASRB (Agri. Scientist Recruitment Board) was started in year
 Ans. 1975
- Q.1764.** Which committee recommended ASRB
 Ans. Gajendra Gadkar Committee
- Q.1765.** Food for work was started in year
 Ans. 1977
- Q.1766.** Two Tier Panchyati Raj system was proposed by
 Ans. Ashok Mehta Committee
- Q.1767.** Crop Insurance Scheme (CIS) was started in year
 Ans. 1985

- Q.1768.** First hybrid of Pigeon Pea was released in year
Ans. 1991
- Q.1769.** National Agricultural Insurance Scheme was started in year
Ans. 1999
- Q.1770.** First National Conference of KVK was held in year
Ans. 2005 (New Delhi)
- Q.1771.** National demonstration scheme is associated with
Ans. Kalwar & Subramanyam
- Q.1772.** Agricultural statistics at glance is published by
Ans. Ministry of Agriculture
- Q.1773.** Indian Farmer Digest is published by
Ans. Pantnagar Agricultural University. (Uttarakhand)
- Q.1774.** First Five year plan was started in year
Ans. 1951
- Q.1775.** RBI was nationalized in year
Ans. 1st Jan., 1949
- Q.1776.** "Krish" television channel was launched in year
Ans. 2004
- Q.1777.** Macro management of Agriculture scheme was first launched in the year
Ans. 2000-2001
- Q.1778.** Macro management of Agriculture scheme revised in the year
Ans. 2008
- Q.1779.** Khetihar Mazdoor Beema Yozna started in year
Ans. 1st July 2001
- Q.1780.** India's first Biotech crop technology approved for commercialization in year
Ans. 2002

- Q.1781.** Present Chairman of NABARD
Ans. Dr. Harsh Kumar Bhanwala
- Q.1781.** Pilot weather based crop insurance scheme (WBCIS) is started in the year
Ans. 2010
- Q.1782.** Concept of PRA (Participatory Rural Appraisal) was given by
Ans. Henry Ford
- Q.1783.** Person considered as father of PRA
Ans. Robert Chambers
- Q.1784.** PRA was introduced in India by the
Ans. NGO's
- Q.1785.** The term community development originated from
Ans. Cambridge (England, 1946)
- Q.1786.** IAAP (Intensive Agriculture Area Programme) came into operation in the year
Ans. 1964 March.
- Q.1787.** ICPS (Integrated Child Protection Scheme)
Ans. Started in the year 2009.
- Q.1788.** Village Grain Bank Scheme
Ans. Launched in the year 1996-97
- Q.1789.** NRHM (National Rural Health Mission)
Ans. Started on 12th April 2005 By Prime Minister.
- Q.1790.** First Newspaper published from India
Ans. Bengal Gadget
- Q.1791.** Radio Broadcasting started from India
Ans. 23rd July, 1927
- Q.1792.** National Bamboo mission started in
Ans. 2006-07
- Q.1792a.** Indias first-magazine contributed to Agriculture
Ans. Kheti

ABOUT I.C.A.R. & I.A.R.I.

- Q.1793.** I.A.R.I. was established in Bihar.
Ans. 1905
- Q.1794.** I.A.R.I. was established under the vice royalty of.
Ans. Lord Curzon in 1905
- Q.1795.** Building of I.A.R.I. was damaged due to earthquake.
Ans. 1934
- Q.1796.** Transfer of I.A.R.I. to New Delhi.
Ans. 1936
- Q.1797.** I.A.R.I. was given the status of deemed university.
Ans. 1958
- Q.1798.** ICAR was established by the recommendation of.
Ans. Lord Linlithgo
- Q.1799.** Imperial council of Agricultural Research was established on
Ans. 23 May 1929
- Q.1800.** First President of ICAR was
Ans. Sir Mohammad Habibullah
- Q.1801.** First secretary of ICAR was
Ans. S. A. Hydari
- Q.1802.** ICAR was renamed on
Ans. March 1946
- Q.1803.** Renaming of ICAR was under the president ship of.
Ans. Jogendra Singh

- Q.1803.** ICAR was reconstituted into full autonomous body.
Ans. 1966
- Q.1804.** First D. G. of ICAR
Ans. Dr. B.P. Pal
- Q.1805.** First Indian Director of IARI.
Ans. B. Vishwanathan
- Q.1806.** First vice chairman of ICAR.
Ans. Diwan Bhadur Vijayraj Acharya
- Q.1807.** Establishment of IRRI.
Ans. 1960 (Philippines)
- Q.1808.** National Bureau of Agriculturally Important Microorganism is situated at
Ans. Mau (U.P.)
- Q.1809.** Total National Bureau are.
Ans. 6
- Q.1810.** Present D.G of ICAR
Ans. Dr. Trilochan Mohapatra
- Q.1811.** Present president of ICAR
Ans. Radha Mohan Singh
- Q.1812.** Vision 2030 launched in the year
Ans. January 2011
- Q.1813.** No. of Institutes and Universities under ICAR
Ans. 99 ICAR Institutes and 63 Universities
- Q.1814.** Status of Deemed University accorded to IARI
Ans. In the year 1958
- Q.1814a.** First Agriculture Minister of Independent India
Ans. Rafi Ahmed Kidwai

IMPORTANT REVOLUTIONS

- Q.1815.** Green revolution occurred in.
Ans. 1965-66 (related to crop production)
- Q.1816.** Term Green Revolution coined by
Ans. William Gaad
- Q.1817.** White revolution is related to.
Ans. Milk production (Verghese Kurien)
- Q.1818.** Blue revolution is related to.
Ans. Fisheries
- Q.1819.** Round revolution is related to.
Ans. Potato
- Q.1820.** Silver revolution is related to.
Ans. Eggs & Poultry
- Q.1821.** Brown revolution is related to.
Ans. Fertilizer production
- Q.1822.** Red revolution is related to
Ans. Tomato
- Q.1823.** Pink revolution is related to
Ans. Onions
- Q.1824.** Black revolution is related to
Ans. Petroleum Products / Biofuels
- Q.1825.** Rainbow revolution is related to
Ans. Overall development of Agriculture
- Q.1826.** Golden revolution is related to
Ans. Horticulture (Dr. K. L. Chadha)
- Q.1527.** Yellow revolution is related to
Ans. Oilseeds

ELEMENTS OF STATISTICS

- Q.1828.** The first step of summarizing the data is.
Ans. Classification
- Q.1829.** The measure of central tendency to be used to study average rate of change in population is.
Ans. Geometric Mean
- Q.1830.** To find the average size of shoes sold in the market we should use.
Ans. Mode
- Q.1831.** To find the average speed of a vehicle when same distance is covered with different speeds, the suitable measure is.
Ans. Harmonic mean
- Q.1832.** To find the average of quantity prices, the measure of central tendency to be used is.
Ans. Harmonic mean
- Q.1833.** To find the average height of plants we should use.
Ans. Arithmetic mean
- Q.1834.** We study measure of central tendency.
Ans. To represent the whole data by only single value.
- Q.1835.** The suitable measure to find average speed when time for each speed is fixed would be.
Ans. Arithmetic mean
- Q.1836.** In industries for quality control, the most important measure of dispersion is
Ans. Range

- Q.1837. What is the order of three averages Arithmetic Mean, Geometric Mean & Harmonic mean for a given data
 Ans. $AM \geq GM \geq HM$
- Q.1838. The formula for Geometric mean for n values x_1, x_2, \dots, x_n is.
 Ans. $(x_1 \cdot x_2 \cdot \dots \cdot x_n)^{1/n}$
- Q.1839. If all the variate values are negative the standard deviation will be.
 Ans. Positive
- Q. 1840. A quantitative or qualitative characteristics that varies from observation to observation in the same group is called
 Ans. Variable
- Q.1841. The standard deviation for the values 4, 5, 6, 7, 8 will be.
 Ans. $(2)^{1/2}$
- Q.1842. Coefficient of variation is calculated by the formula.
 Ans. $C.V. = \frac{S.D.(\sigma)}{Mean(\mu)} \times 100$
- Q.1843. The degree of freedom for error in R.B. design with 10 treatments and 4 replication will be.
 Ans. 27
- Q.1844. Under the assumption for analysis of variance, the parent population should be.
 Ans. Normal
- Q.1845. For any two values a & b the what relationship among Arithmetic mean (A), Geometric mean (G) and Harmonic mean (H) holds?
 Ans. $G^2 = A.H.$

- Q.1846. For testing the hypothesis about mean of one population we use 't' test when.
 Ans. Sample size is small and S. D. is unknown
- Q.1847. For testing the significance of correlation coefficient we use.
 Ans. 't' test
- Q.1848. To test the agreement between observed frequencies and expected frequencies we use.
 Ans. Chi Square test
- Q.1849. The minimum sample size for using chi square test should be.
 Ans. 50
- Q.1850. The analysis of variance technique is used for.
 Ans. Comparing the means of more than two population
- Q.1851. Latin square design is suitable for comparing.
 Ans. 5 to 12 treatments
- Q.1852. In field experiments the commonly used design is.
 Ans. Random Block Design (R.B.D.)
- Q.1853. The design where no. of replications = no. of treatments is
 Ans. Latin square design
- Q.1854. What is the relationship among the correlation coefficient (r) and the two regression coefficient b_{yx} & b_{xy} ?
 Ans. $r^2 = b_{xy} \cdot b_{yx}$
- Q.1855. The regression coefficient lies between.
 Ans. $-\infty$ to $+\infty$
- Q.1856. The correlation coefficient lies between.
 Ans. -1 to $+1$

Q.1857. For testing the independence of two attributes, the test used is.

Ans. χ^2 test

Q.1858. Correlation of continuity in 2×2 contingency table should be used when expected frequency of any cell is.

Ans. Less than 5

Q.1859. The value of (χ^2) chi square always lies between.

Ans. 0 to ∞

Q.1860. The degree of freedom to test the significance of different between two means based on n_1 & n_2 observation is.

Ans. $n_1 + n_2 - 2$

Q.1861. For comparing 4 treatments with R.B. design, the 15 different frequencies can be obtained when the no. of replication are.

Ans. 6

Q.1862. Most commonly used measure of central tendency is.

Ans. Arithmetic Mean

Q.1863. Which measure of dispersion is considered as best ?

Ans. Standard deviation

Q.1864. The value of standard deviation may vary between.

Ans. 0 to ∞

Q.1865. Average rate of depreciation would be obtained by.

Ans. Geometric Mean

Q.1866. If r is the observed correlation coefficient in a sample of n pairs of observation then its standard error is, given by.

$$\text{Ans. S.E. } (r) = \frac{1-r^2}{\sqrt{n}}$$

Q.1867. Probable error of the correlation coefficient given by.

$$\text{Ans. S. E. } (r) = 0.6745 \frac{1-r^2}{\sqrt{n}}$$

Q.1868. When two variables move in the same direction correlation is said to be.

Ans. Positive

Q.1869. When two variables move in the opposite direction correlation is said to be.

Ans. Negative

Q.1870. When the treatments are arranged randomly over the whole of a previously determined set of experimental units, the design is known as

Ans. Completely randomized design (CRD)

Q.1871. In the case of perfect negative correlation the coefficient of correlation will be.

Ans. -1

Q.1872. There is no skewness when the values of mean, median & mode are.

Ans. Equal

Q.1873. When Mean > Median > Mode, skewness will be.

Ans. Positive

Q.1874. Probability of any event is a number lying between.

Ans. 0 to 1 ($0 \leq p \leq 1$)

- Q.1875.** Probability is the science of.
Ans. Decision making
- Q.1876.** Mode of given set of the observation in that value which occurs with the.
Ans. Maximum frequency
- Q.1877.** χ^2 test for goodness of fit is given by
Ans.
$$\chi^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i^2}$$
- Q.1878.** Median is better suited for.
Ans. Positional interval series
- Q.1879.** Harmonic mean is the reciprocal of the.
Ans. Arithmetic mean
- Q.1880.** If a card is drawn from a pack of cards the probability of getting either a king or a queen is.
Ans. 2/13
- Q.1881.** If A & B are mutually exclusive events $P(A \cap B)$ is equal to
Ans. 0
- Q.1882.** The normal distribution with $\mu = 0$, and $\sigma = 1$ is known as.
Ans. Standard normal distribution
- Q.1883.** The distribution of χ^2 depends on the.
Ans. Degree of freedom
- Q.1884.** The χ^2 test should not be applied if N is less than.
Ans. 50
- Q.1885.** ANOVA table stands for analysis of.
Ans. Variance

- Q. 1886.** A two way table containing two attributes is known as
Ans. Contingency table
- Q.1887.** In a double sampling plan the decision to accept or reject a lot is made on the basis of.
Ans. Two samples
- Q.1888.** Given mean 25, mode 25, the median would be.
Ans. 25
- Q.1889.** When data are observed over a period of time the type of classification is known as.
Ans. Chronological classification
- Q.1890.** Neutral scale indicates.
Ans. Absolute changes
- Q.1891.** Ratio scale indicates.
Ans. Relative changes
- Q.1892.** Quartile deviation and standard deviation are related as
Ans. Quartile deviation = $\frac{2}{3} \times$ Standard deviation
- Q.1893.** When mean is 79, variance is 64 then coefficient of variation is.
Ans. 10.126 $\left(\because \text{C.V.} = \frac{\sigma}{\mu} \times 100 \right)$
- Q.1894.** β_2 is a measure of.
Ans. Kurtosis
- Q.1895.** When the value of χ^2 -static is zero ?
Ans. If observed frequency is equal to expected one.
- Q.1896.** The S. D. of the sampling distribution is called.
Ans. Standard error
- Q.1897.** The student 't' distribution test was discovered by.
Ans. W. S. Gosset (1908)

- Q.1899.** The student 't' test was perfected by.
Ans. R. A. Fisher (1926)
- Q.1900.** In describing the amount of variation in a population & measure often used is
Ans. Coefficient of variation (C. V.)
- Q.1901.** In an investigation when two groups or two procedures are compared, these procedures are called.
Ans. Treatments
- Q.1902.** Whether 't' test is parametric or non parametric.
Ans. Parametric
- Q.1903.** Ordinary sign test is a
Ans. Non parametric test
- Q.1904.** Who developed the idea of regression?
Ans. Sir Francis Galton
- Q.1905.** The analysis of covariance is a technique that combines the features of analysis of variance and.
Ans. Regression
- Q.1906.** In normal distribution.
Ans. Mean, Mode, Median are equal
- Q.1907.** If fertility variation in the field is in two direction at right angles, which of the experimental design is suitable
Ans. Latin Square Design (L.S.D.)
- Q. 1908.** If the data is classified by attributes and if two or more characters or groups are to be compared within each attribute we use
Ans. Multiple bar diagram
- Q.1909.** Range of distribution is.
Ans. The difference between largest and smallest observation

- Q.1910.** Biometry deals with.
Ans. Observation with living things
- Q. 1911.** A measure of peakedness or convexity of a curve is known as
Ans. Kurtosis
- Q.1912.** 'F' test can be used for testing the significance of.
Ans. Several difference
- Q.1913.** χ^2 test is applied for.
Ans. Testing the homogeneity of correlation coefficients.
- Q.1914.** Local control helps in.
Ans. Reducing Experimental error and homogeneity of experimental units.
- Q.1915.** When sample size is small and population S.D. is known the test used should be
Ans. 't' test
- Q.1916.** To reduce the experimental error with heterogeneous material we need.
Ans. More replication & use of Local control technique
- Q.1917.** The father of vital statistics was
Ans. Captain John Grant.
- Q.1918.** Pie-diagram is named as pi because
Ans. The sectors resembles the slices cut from a pie.
- Q.1919.** When the numerical data are presented in a descriptive form then it is called
Ans. Textual presentation.
- Q.1920.** Commulative frequency is also known as
Ans. Ogive.
- Q.1921.** The age of an individual can be considered under the category of
Ans. Continuous variable

Q. 1922. The Poisson distribution is also used to represent the probability distribution of a

Ans. Discrete random variable

Q. 1923. The distribution of observation in a population is described in terms of certain measure like mean, standard deviation, proportion etc. These measures are known as

Ans. Parameters

Q.1924. What is the combined geometric mean of two sizes n_1 and n_2 if their geometric means are G_1 and G_2 ?

$$\text{Ans. } \log G = \frac{n_1 \log G_1 + n_2 \log G_2}{n_1 + n_2}$$

Q.1925. What will be harmonic mean of two observations 5 and -5 ?

Ans. ∞

Q.1926. What will be mean of squares of first n natural numbers ?

$$\text{Ans. } \frac{n(n+1)(2n+1)}{6n}$$

Q.1927. If in a frequency distribution, the maximum frequency is being repeated, then the value of mode can be ascertained by

Ans. Method of grouping.

Q.1928. The lack of homogeneity in the size of distribution is called

Ans. Dispersion.

Q.1929. The measure of dispersion which is affected least by fluctuation of sampling is

Ans. Standard deviation.

Q.1930. Standard deviation is independent of _____ and depends on _____.

Ans. Change of origin, change of scale.

Q.1931. The measure of Kurtosis is

Ans. β_2 and γ_2 .

Q.1932. If the Kurtosis of a distribution is less than 3, then it is called

Ans. Platycurtic curve

Q.1933. If the Kurtosis of a distribution is more than 3, it is said to be _____ curve.

Ans. Leptocurtic.

Q.1934. What is the probability of an impossible event?

Ans. Zero.

Q.1935. What is the name of the limiting relative frequency approach probability ?

Ans. Statistical probability.

Q.1936. Who gave the definition of mathematical probability?

Ans. Von-Mises.

Q.1937. If A and B are independent events then $P(A \cap B)$ is equal to

Ans. $P(A) \cdot P(B)$.

Q.1938. By deterministic phenomena, we mean that results can be predicted with

Ans. Certainty.

Q.1939. For two independent events A and B , the conditional probability $P(A/B) = \dots$

Ans. A

Q.1940. When do two random variables are said to be independent ?

Ans. When $\text{cov}(X, Y) = 0$ i.e. correlation coefficient $r = 0$.

Q. 1941. The standard deviation of the sampling distribution of a statistic is called the ___ of the statistic

Ans. Standard error

Q.1942. What is the maximum probability at the point of inflection of normal distribution ?

Ans. $\frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}}$

Q.1943. The normal distribution was discovered by

Ans. De-Moivre.

Q.1944. If X is normally distributed with zero mean and unit variance, then mean and variance of X^2 equal to

Ans. 1 and 2.

Q.1945. What does β in the regression equation $Y = \alpha + \beta x + \gamma$ indicate ?

Ans. Slope of the line.

Q.1946. Predictor variables are also known as

Ans. Independent variable.

Q.1947. Response variables are also known as

Ans. Dependent variable.

Q.1948. What is the angle between two regression lines when correlation coefficient between two variables is zero ?

Ans. 90° .

Q.1949. Non parametric test are based on

Ans. Flexible assumptions.

Q.1950. What do you understand if the rank correlation coefficient is +1 ?

Ans. It reveals that the ranks given by two persons are the same and there is a perfect association between the ranks.

Q.1951. The Z-test does not take into account

Ans. Degrees of freedom.

Q.1952. The number of independent constraints in the set of observation is called

Ans. Degrees of freedom.

Q.1953. Which test of non parametric methods is similar to χ^2 test of goodness of fit ?

Ans. Kolmogorov - Smirnov test.

Q.1954. Ordinary sign test is based on the sign of the deviations from

Ans. Median.

Q.1955. The correction factor in the analysis of variance is equal to

Ans. $\frac{(\text{Grand observation})^2}{\text{Number of observations}}$

Q. 1956. When a hypothesis specifies all the parameters of a probability distribution, it is known as

Ans. Simple hypothesis

Q. 1957. If the hypothesis specified only some of the parameters of the probability distribution, it is known as

Ans. Composite hypothesis

Q.1958. What is the range of t static ?

Ans. $-\infty \leq t \leq \infty$

Q.1959. Equality of two population variances can be tested by

Ans. F -test.

Q.1960. The test whether theory fits well in practical can be judged by

Ans. χ^2 -test.

- Q.1961. If $n = 1$, then the chi-square reduces to
 Ans. Exponential distribution.
- Q.1962. For testing a single proportion of the population test used when the sample size is large is
 Ans. Z-test.
- Q.1963. The linear model in ANOVA of two way classification is
 Ans. $y_{ij} = \mu + T_i + e_{ij}$.
- Q.1964. The criterion for one sided or two sided test depends on
 Ans. Alternative hypothesis
- Q.1965. For what type of trend the of least squares is used.
 Ans. It is used to know about linear and quadratic trends.
- Q.1966. What is the best method for finding out seasonal variations ?
 Ans. Ratio to moving average method.
- Q.1967. How many control lines are in control chart ?
 Ans. Three control lines.
- Q.1967. The number of defects should follow .
 Ans. Poisson distribution
- Q.1969. The main tools of statistical quality control are
 Ans. Shewhart charts and acceptance sampling plans.
- Q.1970. What does a hypothesis called under test ?
 Ans. Null hypothesis.
- Q.1971. What do you call the probability of type 1 error?
 Ans. The level of significance.
- Q. 1972. To apply Mann-Whitney U test, the two samples that are to be compared should be
 Ans. Independent

- Q.1973. The difference between sample estimate and the corresponding population parameter is called
 Ans. Sampling error.
- Q.1974. Larger samples are required for getting the
 Ans. Higher precision
- Q.1975. If our estimates based on sample values are closer to the population parameters, the estimate can be regarded as
 Ans. Reliable
- Q.1976. What is the most frequently used index number formula ?
 Ans. Weighted formula.
- Q.1977. What is another name of Laspeyre's index number?
 Ans. Base year method index number.
- Q.1978. Which index number is generated if the geometric mean of Laspeyre's and Paasche's index number are taken ?
 Ans. Fisher's ideal index number.
- Q.1979. Laspeyre's was a
 Ans. French economist.
- Q.1980. The basic pay, D. A. etc. of various employees can be determined on the basis of
 Ans. Cost of living index number.
- Q. 1981. The repeated application of the treatments under investigation is known as
 Ans. Replication
- Q.1982. Prof. Karl Pearson was a
 Ans. Biometrician.

Q.1983. What is the number of all possible samples of size three from a population of 20 units ?

Ans. ${}^{10}C_3 = 120$

Q.1984. If the sample values are 1, 3, 5, 7, 9, what should be standard error S. E. of sample mean?

Ans. $\sqrt{2} \left(\because \text{S.E.} = \frac{S}{\sqrt{n}} \right)$

Q.1985. What is the name of any population constant ?

Ans. Parameter.

Q.1986. What is the identification of the index of precision of an estimator ?

Ans. Standard error.

Q.1987. The stratified random sampling is applicable when the population is

Ans. Heterogenous.

Q.1988. Sampling error occur due to _____ selection of samples and _____ method of analysis.

Ans. Improper, faulty.

Q.1989. What will be the regression coefficient of Y on X and X on Y , if a constant a is added to each values of X and Y ?

Ans. It will remain same.

Q.1990. Given two regression lines $X + 2Y = 5$ and $2X + 3Y = 8$ and variance $X = 12$, what is the value of standard deviation of Y ?

Ans. 2.

Q.1991. The limit of partial correlation coefficient is

Ans. -1 to 1.

Q.1992. In which field in the daily life the probability theory has major application.

Ans. Risk assessment and trade on commodity market.

Q.1993. If the points of scatter diagram are widely scattered a _____ between the variables is expected.

Ans. Greater amount of correlation.

Q.1994. The correlation between price and demand of a commodity is

Ans. Negative.

Q.1995. The another name of critical region is

Ans. Region of rejection.

Q.1996. When does paired t - test is applicable ?

Ans. When the observations are paired together.

Q.1997. Which test is often used to refer specifically to the one sample location test?

Ans. Z-test.

Q.1998. Sampling inspection by variables requires

Ans. Less inspection than the attributes.

Q.1999. The expected sample size required to arrive at a decision about a lot is called

Ans. Average sample number.

Q.2000. Bowley index number formula is arithmetic mean of

Ans. Laspeyre's and Paasche's index number.

Q.2001. The condition for factor reversal test in the usual notation is given by

Ans. $P_{01} \times Q_{01} = V_{01}$

Q.2001. One of the limitations in the construction of index number is

Ans. Choice of average.

Q.2003. The errors involved in the construction of index number are

Ans. Sampling error, formula errors and errors in collection of data.

- Q.2004.** Which test is not satisfied by Fisher's formula?
 Ans. Circular test.
- Q.2005.** Term 'Kurtosis' was introduced by
 Ans. Karl Pearson in the year 1906.
- Q.2006.** For what sample size the *t* test can be applied.
 Ans. When sample size < 30
- Q.2007.** What are the basic steps of field experimentation?
 Ans. (i) Replication, (ii) Randomization, (iii) Local control.
- Q.2008.** In which fields the geometric means is commonly used?
 Ans. To find average percent increase in sales, production or other economic or business series.
- Q.2009.** Geometric mean can be easily calculated with help of
 Ans. logarithm
- Q.2010.** What is the relation between mean, median, and mode?
 Ans. Mode = 3 median - 2 mean.
- Q.2011.** In variance ratio test, which variance is kept as the numerator?
 Ans. Larger variance.
- Q.2012.** How many types of hypothesis exist?
 Ans. Four simple, null, composite and statistical.
- Q.2013.** By whom and when the Poisson distribution was developed?
 Ans. S.D. Pearson in 1837.
- Q.2014.** The mean and variance of random variable is given by
 Ans. Mean $\mu = \sum P_i X_i$
 Variance $\sigma^2 = \sum P_i X_i^2 - (\sum P_i X_i)^2$

- Q.2015.** The mean and variance of Binomial distribution is given by
 Ans. Mean = np , Variance = npq
- Q.2016.** The mean and variance of Poisson distribution are
 Ans. equal (both equal to np)
- Q.2017.** In Bernauli trails all trails have
 Ans. Equal probability
- Q.2018.** The experimental design for fertility gradient of land in two directions is
 Ans. Least square design.
- Q. 2019.** The calculation of expected frequencies is crucial in
 Ans. χ^2 test.
- Q.2020.** Out of the two kinds of error in sampling, which one is more serious?
 Ans. Type II error.
- Q.2021.** Positively and negatively skewed distributions are also known as
 Ans. Right skewed and left skewed respectively.
- Q.2022.** As per law of probability the total probability of event *A* associated with events E_1, E_2, \dots, E_n is given by
 Ans. $P(A) = P(E_1) \cdot P(A/E_1) + P(E_2) \cdot P(A/E_2) + \dots + P(E_n) \cdot P(A/E_n)$
- Q.2023.** By whom the term null hypothesis was first coined?
 Ans. Ronald Fisher
- Q.2024.** The test whether the theory fits well in practical can be judged by
 Ans. χ^2 test (Chi-square)

Q.2025. Who introduced the concept of alternative hypothesis?

Ans. Jerzy Neyman and Egon Pearson.

Q.2026. In analysis of variance, all populations from which samples have been drawn are:

Ans. Normal

Q.2027. Who defined mathematical probability?

Ans. Von Mises

Q.2028. Give a well known example of skewed distribution.

Ans. Personal wealth

Q.2029. What is the asymptotic power of Kolmogorov Smirnov test?

Ans. One

Q.2030. What is the skewness for normal distribution?

Ans. Zero.

Q.2031. What are the other names given to alternative hypothesis?

Ans. Research hypothesis or maintained hypothesis.

Q.2032. Non parametric tests are based on _____ assumptions.

Ans. Flexible.

Q.2032. For three mutually exclusive events, A , B , C .

$$P(A \cup B \cup C) =$$

Ans. $P(A) + P(B) + P(C)$

Q.2033. From where does the word Kurtosis taken?

Ans. Greek word Kyrtyos mean bulging.

Q.2034. Experimental Design Principles were given by

Ans. R. A. Fisher

Q.2035. Median is also called as

Ans. 50th percentile or 2nd quartile

Q.2036. A distribution said to be symmetrical when the value are uniformly distributed around the

Ans. Mean

Q.2037. Coefficient of skewness for a symmetrical distribution is

Ans. Zero

Q.2038. F-distribution in sampling was first developed by

Ans. R. A. Fisher

Q.2039. Square of standard deviation is

Ans. Variance

Q.2040. Standard deviation of a sampling distribution of statistics

Ans. Standard error

Q.2041. An analysis of variation between two or more variable

Ans. Correlation

Q.2042. Mathematical reason of the average relationship between two or more variables

Ans. Regression

Q.2043. The foundation of mathematical theory of probability was laid in the mid-seventeenth century by two French Mathematicians

Ans. B. Pascal and P. Fermal

Q.2044. The measures of the direction and the degree of asymmetry are called

Ans. Measures of skewness

Q.2045. Bowley's coefficient of skewness is also known as

Ans. Quartile coefficient of skewness

- Q.2046. If $\beta_2 > 3$ the distribution is said to be
 Ans. Leptokurtic
- Q.2047. The concept of consistency is concerned with the variability of the
 Ans. Estimator
- Q.2048. The non-parametric alternative to paired *t*-test is the
 Ans. Wilcoxon signed-rank test
- Q.2049. An example of non-parametric test for comparison of several related samples is
 Ans. Quade test
- Q.2050. The Karl Pearson's coefficient of correlation is often referred as _____ in order to distinguish it from other measure of relationship.
 Ans. Product moment correlation
- Q.2051. The value $1 - r^2$, where *r* is correlation coefficient is called
 Ans. Coefficient of alienation
- Q.2052. The multiple correlation is a measure of strength of relationship between the dependent variable and
 Ans. All the independent variable *X*'s Jointly
- Q.2053. The error due to data entry, coding, classification etc. are known as
 Ans. Processing errors
- Q.2054. When all the treatments have equal changes of being allocated to different experimental units it is known as
 Ans. Randomization
- Q.2055. The minimum size of an experimental plot for a given degree of precision is known as
 Ans. Optimum lot size.

- Q.2056. The two important methods that are used to determine optimum plot size are
 Ans. Maximum curvature method and Fairfield Smith's variance law.
- Q.2057. The analysis of variance can be regarded as a special development of
 Ans. Regression analysis
- Q.2058. The functional relationship, $\sigma^2 = \mu(1-\mu)/n$ occurs when distribution is
 Ans. Binomial
- Q.2059. In Latin Square Design (LSD) each row and each column is a
 Ans. Complete block or replication
- Q.2060. When the treatments are arranged randomly over the whole of a previously determined set of experimental units, the design is known as
 Ans. Completely Randomized Design (CRD)
- Q.2061. The square root transformation is used when the observations follows a
 Ans. Poisson distribution
- Q.2062. Modern concepts of experimental design are due primarily to
 Ans. R. A. Fisher

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

- Q. 1. Who is known as father of economics?**
Ans. Adam Smith
- Q. 2. In which year the 'AGMARK' act was enforced?**
Ans. 1937 and amended in 1986 [ARS NET 2001]
- Q. 3. What is wealth according to Keynes?**
Ans. Wealth consists of potentially exchangeable means of satisfying human wants.
- Q. 4. Central Agmark Laboratory situated at**
Ans. Nagpur
- Q. 5. Full form of AGMARK**
Ans. Agricultural Produce Grading and Marking
- Q. 6. Types of Wealth are?**
Ans. (i) Individual wealth, (ii) Social wealth, (iii) National wealth, (iv) Cosmopolitan wealth, (v) Negative wealth.
- Q. 7. Fixed cost includes?**
Ans. Taxes, insurance, cess, depreciation on machinery, tools building etc.
- Q. 8. Where does the dumping activity seen?**
Ans. Monopoly
- Q. 9. What is the formula for average variable cost?**
Ans. $AVC = \frac{\text{Total variable cost}}{\text{Output}} = \frac{TVC}{Q}$
- Q. 10. Define marginal cost?**
Ans. It is the change in the total cost due to change in one unit of output, i.e., $MC = \frac{\Delta TVC}{\Delta Q}$
- Q.10a Marginal cost always zero**
Ans. When fixed cost does not change with change in output

- Q. 11. When two products are substituting each other, the optimum level of these inter prices can be worked out through. [JRF 2001, NET 2001]**
Ans. Production possibility curve
- Q. 12. Elasticity of supply is expressed as**
Ans. Elasticity of supply (E_s) =
$$\frac{\text{percentage change in quantity of good supplied}}{\text{percentage change in good supplied}}$$
- Q. 13. When the supply of commodity increase to infinite quantity or unlimited quantity even though there is a minute rise in price the elasticity of supply is said to be**
Ans. Perfectly elastic
- Q. 14. When percentage change in quantity supply equals percentage change in price, then the supply is called**
Ans. Unitary Elastic supply.
- Q. 15. As per Dalton, the optimum population is that which gives the**
Ans. Maximum income per head.
- Q. 16. When does a firm should close down the operation?**
Ans. If the price of its product is less than average variable cost (AVC).
- Q. 17. Name two types of wages?**
Ans. (i) Nominal wages or money wages (ii) Real wages
- Q. 18. What is the full form of GNP?**
Ans. Gross National Product
- Q. 19. Demand for wheat is**
Ans. Inelastic

- Q. 20.** Relationship between cost function and production function is
- Ans. Negative
- Q. 21.** When marginal production is equal to average production, then elasticity of production is equal to:
- Ans. One [ARS, NET 2002]
- Q. 22.** GNP through income method can be expressed by the formula
- Ans. $GNP = \text{wages and salaries} + \text{rents} + \text{interest} + \text{profit of unincorporated firms} + \text{dividends} + \text{undistributed corporate profit} + \text{corporate taxes} + \text{indirect taxes} + \text{depreciation} - \text{transfer payment}$.
- Q. 23.** What is the full form of NNP?
- Ans. Net National Product or National income at Market price.
- Q. 24.** The amount of money available with the private individual to spend is called?
- Ans. Disposable Income (DI)
- Q. 25.** Which is the most effective way to overcome the defects of agriculture marketing?
- Ans. Regulated Marketing [JRF 1998]
- Q. 26.** What are the five important functions of money?
- Ans. (i) Medium of exchange.
(ii) A limit of Account.
(iii) Standard of deferred payment
(iv) Store of value.
(v) Transferable.
- Q. 27.** The ratio of normal GNP to real GNP which can be interpreted as comprehensive price index is called
- Ans. GNP Deflator

- Q. 28.** A sustained rise of less than 3 percent of price per annum is called
- Ans. Creeping inflation.
- Q. 29.** What is the full form of MRTS?
- Ans. Marginal Rate of Technical Substitution.
- Q. 30.** What is the formula for marginal rate of substitution?
- Ans. $MRTS = \frac{\text{Number of units of replaced product}}{\text{Number of units of replacing product}}$
- Q. 31.** The presence of a single buyer for the products produced by the firm is called?
- Ans. Monopsony
- Q. 32.** The nature of agricultural economics is
- Ans. Ideal science and Art.
- Q. 33.** The number of divisions of agricultural economics?
- Ans. Five
- Q. 34.** One of the method to deal with seasonal unemployment in villages is
- Ans. Development of Kutir and local Industries.
- Q. 35.** The reason for poverty of people in prosperous India is
- Ans. Lack of proper use of natural resources.
- Q. 36.** The 'Poor people live in prosperous India' was given by
- Ans. Dr. Veer Anstey
- Q. 37.** A Marginal Farmer should have land between
- Ans. 2.5-5.0 acres.
- Q. 38.** When was Planning Commission established?
- Ans. In the year 1950.

- Q. 39.** The famous bank B.C.C. was established by
 Ans. Aaga Hasan Aabidee.
- Q. 40.** 'Key Village Scheme' was started in five year plan?
 Ans. First plan
- Q. 41.** One who gets profit from money inflation is
 Ans. The person taking loan.
- Q. 42.** In India maximum agricultural area is irrigated by the
 Ans. Canals.
- Q. 43.** The maximum number of tube well or pumping set in India are found in the state.
 Ans. Tamil Nadu.
- Q. 44.** The wholesale business of wheat in India was nationalised in the year
 Ans. 1973
- Q. 45.** When was Community Development Programme started?
 Ans. 2nd October 1952.
- Q. 46.** Levels in Cooperative Organisation in India?
 Ans. Three.
- Q. 47.** The bank in India having largest number of branches is
 Ans. State Bank of India.
- Q. 48.** The Rural Bank takes loan from
 Ans. Lead Bank.
- Q. 49.** The agricultural cost is equal to
 Ans. Sum of fixed and variable cost.
- Q. 50.** Agricultural cost and price commission was established
 Ans. In the year 1965

- Q. 51.** When was Food Corporation of India (FCI) established ?
 Ans. In January 1965.
- Q. 52.** Regional Rural Bank was established in the year
 Ans. 1975.
- Q. 53.** When was Indian Reserve Bank established ?
 Ans. on 1st April in the year 1935.
- Q. 54.** When were 14 main banks nationalised ?
 Ans. 19th July 1969.
- Q. 55.** Where is World Bank located ?
 Ans. Washington D.C.
- Q. 56.** If the price of a commodity increases its demand will
 Ans. Decrease
- Q. 57.** Welfare definition of Economics was given by
 Ans. Alfred Marshal (ADA, Indore 2009)
- Q. 58.** Agriculture Insurance company of India Ltd. started on
 Ans. 20th Dec., 2002
- Q. 59.** Asian Development Bank (ADB) was established in the year
 Ans. 1966 at Manila (Philippines)
- Q. 60.** A line or curve connecting the least cost combination of inputs for all output levels is known as
 Ans. Isocline
- Q. 61.** Inflation is a situation
 Ans. When money supply grows at higher rate than GDP in real terms
- Q. 62.** Measure of inflation from supply side
 Ans. Increase in supply of products or commodities
- Q. 63.** Present RBI Governor
 Ans. Dr. Raghuram Rajan

Q. 64. Sum of market value of all final goods and services produced within domestic territory of the country during an accounting year both by Indians and Foreigners residing within Indian boundary is called.

Ans. Gross Domestic Product (GDP)

Q. 65. The full form of PPP is

Ans. Purchasing Power Parity

Q. 66. The full form of NDC is

Ans. National Development Council

Q. 67. The full form CACP is

Ans. Commission for Agricultural Costs and Prices

Q. 68. The full form of MSP is

Ans. Minimum Support Price

Q. 69. What is the full form of SFAC?

Ans. Small Farmers' Agri-Business Consortium

Q. 70. What is the full form of NAFED?

Ans. National Agricultural Cooperative Marketing Federation of India Limited.

Q. 71. The first five year plan draft outline was issued by the planning commission in the year

Ans. 1951

Q. 72. In which branch of economics the study of farm management comes?

Ans. Microeconomics

Q. 73. The three broad classifications of marketing function are

Ans. 1. Function of exchange 2. Function of physical supply, 3. Facilitating functions.

Q. 74. The full form of the PACS is

Ans. Primary Agricultural Credit Societies

Q. 75. The full form of DCCB is

Ans. District Central Co-operative Bank

Q. 76. The average size of an self help group (SHG) is about of

Ans. 15 people

Q. 77. SHG Bank linkage programme was started on

Ans. 31/12/2005

Q. 78. The maximum net revenue is obtained when marginal cost equals the

Ans. Price of product

Q. 79. Three physical factors determining the type of farming are

Ans. Climate, soil, topography

Q. 80. Two basic classification of farm labour are

Ans. 1. Unpaid labour 2. Paid labour (Hired)

Q. 81. Three kind of farm wages are

Ans. 1. Time basis 2. Price basis 3. Share basis

Q. 82. Labour efficiency in agriculture refers to

Ans. The amount of productive work accomplished per man on the farm per unit of time.

Q. 83. Four types of co-operating farming are

Ans. 1. Co-operative better farming
2. Co-operative joint farming
3. Co-operative collective farming
4. Co-operative tenant farming

Q. 84. The ordinary labour employed for manual work, which does not need any training of specialised nature is called _____.

Ans. Unskilled labour

Q. 85. A farm on which no single product source of income equals as much as the total receipts is called as _____.

Ans. Diversified or general farm

Q. 86. Five types of farming are

Ans. 1. Specialised farming, 2. Diversified farming, 3. Mixed farming, 4. Ranching, 5. Dry farming

Q. 87. First organised study in the field of farm cost accounting was initiated in _____ by the _____.

Ans. 1923-24, Punjab Board of Economic Enquiry

Q. 88. The Agro-economic research centres were established in _____.

Ans. 1954-55

Q. 89. Average fixed cost (AFC) = Total fixed cost (TFC) + _____.

Ans. Cost of number of output units

Q. 90. Total variable cost (TVC) = Total Cost (TC) - _____.

Ans. Total fixed cost (TFC) or sum of variable cost

Q. 91. When demand curve is flatter then demand is

Ans. Relatively elastic

Q. 92. Profit is maximum when marginal product = _____.

Ans. Factor product price ratio

Q. 93. A line or curve connecting the least cost combination of inputs for all output levels is known as

Ans. Isoclines

Q. 94. The border lines which separate complementarity from substitution is called

Ans. Ridge lines

Q. 95. The rate of change in quantity of one product as a result of an unit increase in the other product when the amount of input used remains constant is called

Ans. Marginal Rate of Product Substitution (MRPS)

Q. 96. The percentage decrease in output of one product associated with a given percentage increase in second product is called

Ans. Elasticity of Product Substitution.

Q. 97. The line defining all possible combinations of two commodities which would yield an equal revenue is called

Ans. Iso-revenue line

Q. 98. If marginal rate of substitution is small than zero the enterprise relationship is

Ans. Competitive

Q. 99. Antagonism is the opposite of _____ relationship

Ans. Complementary

Q. 100. The size of farm is generally understood in terms of

Ans. Physical area, volume of production and value of production

- Q. 101.** Cropping pattern is expressed at a _____ level *i.e.* _____, _____ or _____ level.
 Ans. micro, district, taluk, village
- Q. 102.** A specialized farm is one where 50% or more of income is derived from _____
 Ans. One single source
- Q. 103.** The income that could have been received, if the input have been used in its most profitable alternative use is called _____
 Ans. Opportunity cost
- Q. 104.** The market condition where in the entire supply of a commodity is concentrated in the hands of a single firm is called _____
 Ans. Monopoly
- Q. 105.** The market situations which there are only two sellers is called _____
 Ans. Duopoly
- Q. 106.** The presence of a few firms in the market, producing either a homogeneous product or products which are close but not perfect substitution to each other is called _____
 Ans. Oligopoly
- Q. 107.** The rent received exclusively from use of land only is called _____
 Ans. Economic rent
- Q. 108.** The proponent of Liquidity Preference Theory is _____
 Ans. J. M. Keynes
- Q. 109.** Dynamic theory of profits was postulated by _____
 Ans. J.B. Clark (an American economist)

- Q. 110.** Innovation theory was postulated by _____
 Ans. Joseph A. Schumpeter, (an American Economist).
- Q. 111.** Wage theory of profits was advocated by _____
 Ans. Prof. Taussig, (an American economist)
- Q. 112.** Which economist awarded Nobel prize for microcredit
 Ans. Muhammad Yunus
- Q. 113.** Population theory of demographic transition was given by _____
 Ans. C.P. Blacker and Frank Notestein
- Q. 114.** Fully employed situation is seen in _____
 Ans. Recession
- Q. 115.** State first accorded status of Industry to Agriculture
 Ans. Maharashtra in 1997
- Q. 116.** Mahalwari system of land tenure during British period was started by _____
 Ans. Lord William Bentinck
- Q. 117.** Law of substitution was propounded by _____
 Ans. Austrian economist Hermann Heinrich Gossen
- Q. 118.** Agriculture census is carried out _____
 Ans. Once in 5 years (First census carried out in the year 1970)
- Q. 119.** Percent population under poverty line in India
 Ans. 26%
- Q. 119a.** Gini coefficient is a measure of _____
 Ans. Income inequality among population

ENVIRONMENTAL SCIENCE AND METEOROLOGY

- Q. 1.** The region inhabited by living organism on land, ocean and atmosphere.
Ans. Biosphere
- Q. 2.** Name the plants which produce food themselves through photosynthesis—
Ans. Phototrophs
- Q. 3.** In which eco-system, producers are of large size—
Ans. Grassland eco-system
- Q. 4.** Primary consumers in aquatic system are—
Ans. Zooplankton
- Q. 5.** The first major human source of air pollution was:
Ans. Fire
- Q. 6.** Movement of matter within or between ecosystem is called:
Ans. Biochemical cycle
- Q. 7.** Most poisonous pollutant is
Ans. Arsenic
- Q. 8.** Swine flu disease (in humans) is caused by virus
Ans. H1N1 virus
- Q. 9.** Colourless odourless and non-corrosive air pollutant is
Ans. SO₂ (Sulfur dioxide)
- Q. 10.** Sphere of Water is called.
Ans. Hydrosphere (70% of globe)
- Q. 11.** The micro-bacteria (organism) which live only in presence of free oxygen:
Ans. Aerobic

- Q. 12.** The microbial count of potable water should be
Ans. < 100Cfu/ml
- Q. 13.** Microorganism responsible for the conversion of CO to CO₂
Ans. *Acetobacter*
- Q. 14.** Sources of soil pollutants are—
Ans. Herbicides, Pesticides and Weedicides
- Q. 15.** Soil erosion can be prevented by :
Ans. Contour farming, Strip farming and Terracing
- Q. 16.** Following is responsible for ozone layer depletion ?
Ans. CFC, CO₂, SO₂ and Methane
- Q. 17.** DDT is an —
Ans. Agro-chemical
- Q. 18.** Term ecology was first defined by
Ans. German biologist Ernest Haeckel in the year 1866
- Q. 19.** Maximum concentration of ozone is found in
Ans. Lower stratosphere (JRF, 2011)
- Q. 20.** Global warming is mainly due to
Ans. Increase in Green House Gases (GHG) and deforestation
- Q. 21.** Kind of forest found maximum in India?
Ans. Tropical dry deciduous forest
- Q. 22.** Forest conservation act was made in the year
Ans. 1980
- Q. 23.** Name the test which has self purification capacity of water body
Ans. BOD test

- Q. 24. Salt efflorescence**
 Ans. Accumulation of excessive salt in the soil system which makes soil unfit for cultivation.
- Q. 24a. Fluoride pollution mainly affects?**
 Ans. Teeth (Tooth decay)
- Q. 25. Hydro-carbons present in the air are :**
 Ans. Primary air pollutants (Hydro-carbon are : aromatics, naphthenes, olefines and paraffins).
- Q. 26. Name metal toxic in drinking water even at low concentration**
 Ans. Chromium
- Q. 27. Bacteria that obtain both energy and material from organic sources**
 Ans. Heterotrophs
- Q. 28. The specific gravity of sewage is**
 Ans. Slightly more than 1
- Q. 29. Most commonly used disinfectant in water purification**
 Ans. Chlorine.
- Q. 30. Instrument used for measuring the concentration of ozone in air is**
 Ans. Ozonometer
- Q. 31. Wind speed is measured by**
 Ans. Anemometer
- Q. 32. The term ecosystem was coined and developed by**
 Ans. Arthur G. Tansley (1935)
- Q. 33. The organisms who eat dead organic matter are**
 Ans. Decomposers (Bacteria and Fungi).
- Q. 34 Upright pyramid of biomass in forest eco-system is**
 Ans. Producer-herbivores-carnivores

- Q. 35. Upright pyramid of numbers of grassland ecosystem**
 Ans. Producer-herbivorous-secondary consumers-top consumer (carnivorous)
- Q. 36. Concept of ecological pyramid was first introduced by :**
 Ans. Charles Elton in 1927.
- Q. 37. World environment day is celebrated on**
 Ans. 5th June
- Q. 38. Gases responsible for acid rain.**
 Ans. SO_2 and NO_2 (ARS 2005)
- Q. 39. Reduction of nitrates and nitrites to nitrogen by microorganisms**
 Ans. Denitrification
- Q. 40. A wooded wetland in which water is near or above ground level.**
 Ans. Swamp
- Q. 41. Rapid growth of algae in surface waters due to increase in inorganic nutrients.**
 Ans. Algal bloom
- Q. 42. A chemical or physical agent that causes cancer**
 Ans. Carcinogen
- Q. 43. Accumulation of nutrients in a lake or pond due to human intervention or natural process is**
 Ans. Eutrophication
- Q. 44. Agriculture in which several plant species are grown simultaneously to reduce insect infestation and disease**
 Ans. Heteroculture

Q. 45. Troposphere

Ans. It is upto 15 km from the earth surface upwards

Q. 46. Stratosphere

Ans. 15–45 km from the surface of the earth upwards

Q. 47. Mesosphere

Ans. Is the layer between stratosphere and thermosphere.

Q. 48. Ionosphere (Thermosphere)

Ans. It rest above the mesosphere, upto the height of about 130 km earth's surface.

Q. 49. Intertidal zons

Ans. Area of shoreline between low and high

Q. 50. Pollutant free alternative to petrol for automobiles.

Ans. Propane

Q. 51. The gas does not pollute air.

Ans. Nitrogen Dioxide

Q. 52. The core of Lithosphere mainly consists of

Ans. Ca and Mg

Q. 53. Microorganism responsible for formation of H₂S

Ans. *Desulfovibrio vulgaris*

Q. 54. Which gas contributes least in green house

Ans. NO₂ (JRF, 2012)

Q. 55. The gas responsible for Bhopal gas tragedy.

Ans. Methyl isocyanate

Q. 56. Fungi are plant that lack.

Ans. Oxygen

Q. 57. Biodegradable water can be converted to useful substances with the help of

Ans. Earthworms

Q. 58. Land that can be cultivated to grow crops

Ans. Arable land

Q. 59. Species way of life in a community and includes everything that affects its survival and reproduction

Ans. Niche or ecological niche

Q. 60. Dome of heated air surrounds an urban area and traps pollutants.

Ans. Dust dome

Q. 61. Place or type of place where an organism or a population of organism lives.

Ans. Habitat

Q. 62. In a polluted lake Index of pollution is

Ans. Daphnia

Q. 63. Thinner clouds over the sky that decrease the ability to reflect heat from sun and rising ocean temperature shows.

Ans. Signs of global warming

Q. 64. Seamounts are

Ans. Submerged oceanic volcanoes.

Q. 65. *Euphorbia lathyris*

Ans. Gasoline plant

Q. 66. Founder of Kenyan greenbelt movement

Ans. Wangari Mathai

Q. 67. Author of famous book 'Silent spring'

Ans. Rachel Carson.

Q. 68. Author of famous book 'Small is beautiful'

Ans. Earnest Schumacher (1911–1977)

- Q. 69. Mitti Bachao Andolan launched at**
 Ans. Hoshangabad (M. P.)
- Q. 70. Ultra violet radiations are absorbed by**
 Ans. Ozone layer (ARS 2005)
- Q. 71. A tropical grassland, usually scattered with trees or shrubs.**
 Ans. Savanna.
- Q. 72. Carbon cycle**
 Ans. The process of removal and uptake of carbon on a global scale.
- Q. 73. Photochemical smog consists of**
 Ans. O₃, PAN (peroxyacetyl nitrate) and NO_x (NO₂ and NO)
- Q. 74. Plants which mostly emits terpenes are**
 Ans. Eucalyptus and Oak
- Q. 75. Mean residence time of methane gas is about**
 Ans. 3-7 years
- Q. 76. CO₂ content in atmosphere is**
 Ans. 0.03% (JRF 2012)
- Q. 77. Green house gases are** (ARS/NET, 2009)
 Ans. CO₂, CH₄ (methane), O₃ and CFC's
- Q. 78. Chilika lagoon lake is situated in the state**
 Ans. Odisha (ARS/NET 2009)
- Q. 79. Unlimited resources are**
 Ans. Climate with wind energy, and solar energy
- Q. 80. Eutrophication is the cause of**
 Ans. Excessive nutrients in water body by human being
- Q. 81. The first stage of soil erosion is**
 Ans. Sheet erosion

- Q. 82. National Environmental Awareness Campaign (NEAC) or National Environmental Month (NEM) is observed**
 Ans. Nov. 19 to Dec., 18 every year since 1986.
- Q. 83. World Environment Day is observed**
 Ans. June 5th every year. (JRF 2010)
- Q. 84. Permissible limit of iron in drinking water is**
 Ans. 1 ppm
- Q. 85. What is Minamata ?**
 Ans. A disease caused by mercury pollution in Japan in 1953.
- Q. 86. Maximum limit of chromium in drinking water recommended by WHO .**
 Ans. 0.05 mg/litre
- Q. 87. Amount of copper essential in small quantity for plant, animal and human beings is**
 Ans. 2 mg per day
- Q. 88. World's Driest place is**
 Ans. The Atacama desert in Chili. It has only 0.51 mm of rain in a year.
- Q. 89. El-Nino (associated with a warming of central and eastern tropical pacific) and La-Nina are**
 Ans. Reverse process
- Q. 90. Kyoto protocol is related to**
 Ans. Green House Gas minimization
- Q. 91. Which organism is responsible for production of methane from biogas**
 Ans. Methanobacteria (JRF 2012)
- Q. 92. National Diversity Board is situated at**
 Ans. Chennai (JRF 2011)

- Q. 93. Convention of Biodiversity 2012 held at**
 Ans. Hyderabad. (A.P.)
- Q.94. Balram yojna is related to**
 Ans. Water management
- Q.95. How much noise can be tolerated by human ear**
 Ans. 80 decibels
- Q.96. Developing technology of waste clean up applicable to leaking storage tanks and spills waste**
 Ans. Bioremediation
- Q.97. Pyramid upright in all ecosystems**
 Ans. Pyramid of energy
- Q.98. Tree best suitable for wetlands**
 Ans. Eucalyptus
- Q.99. Fluoride pollution mainly affects which of the following?**
 Ans. Teeth
- Q.100. Biochemical oxygen demands for?**
 Ans. Dissolved oxygen needed by the microbes to decompose the organic waste
- Q.101. The increased rate of skin cancer and mutation is due to?**
 Ans. Ozone depletion
- Q. 102. Name the disease which is caused by eating fish which inhibits mercury contaminated water?**
 Ans. Minamata Disease
- Q. 103. Which plant is used as an indicator of SO₂ pollution in air?**
 Ans. Epiphytic lichens
- Q. 103a. National Tree of India**
 Ans. Banyan tree

- Q.104. Which of the following built plants contribute to the maximum risk of the environment?**
 Ans. Nuclear Plants
- Q.105. Maximum deposition of DDT occurs in?**
 Ans. Sea gull
- Q.106. Which green house gas is being generated in agricultural fields?**
 Ans. Nitrous Oxide/Methane
- Q.107. Contamination of water due to the presence of coliform bacteria is because of?**
 Ans. Mammalian excreta
- Q.108. HPLC stands for?**
 Ans. High performance liquid chromatography
- Q.109. How is phosphate removed through precipitation from waste water?**
 Ans. Lime or Alum
- Q.110. Name the country in which the first plant based remediation system was installed over 300 years ago?**
 Ans. Germany
- Q.111. Which country is the highest per capita emitter of carbon dioxide in the world?**
 Ans. Qatar
- Q.112. In Nitrogen Cycle, soil nitrates are transformed into free nitrogen by?**
 Ans. Denitrifying bacteria.
- Q.112a. Greatest sink of carbon on the earth**
 Ans. Oceans
- Q.112b. Green wave stands for**
 Ans. Youth programme to create awareness about biodiversity and reduce its loss in future.
- Q.112c. El-Nino phenomenon leads to rise in**
 Ans. Ocean temperature and dry weather and drought like situation is created
- Q.112d. Greenhouse effect discovered by the scientist**
 Ans. Joseph Fourier (1529)

Meteorology

- Q. 113. Indian Institute of tropical meteorology (IITM)**
Ans. Pune (1962)
- Q. 114. Meteorology is derived from**
Ans. Greek word metros means high in the sky
- Q. 115. Famous book "book of signs" on weather forecasting was compiled by**
Ans. Greek scientist Theophrastus
- Q. 116. What is Albedo**
Ans. Reflected solar radiations without any change in quality
- Q. 117. Solar radiations are measured by**
Ans. Pyranometer
- Q. 118. Atmospheric pressure is measured by**
Ans. Aneroid Barometer
- Q.119. Relative humidity is measured by**
Ans. Psychrometer
- Q. 120. Rainfall is Measured by**
Ans. Raingauge
- Q. 121. Wind speed is measured by**
Ans. Anemometer
- Q. 122. Strongest recorded wind**
Ans. In USA in April 1934. The record wind speed was 371 kmph (231 mph)
- Q. 123. Chemical used for artificial rainfall**
Ans. Silver Iodide (Ag I) (ARS 2010)
- Q. 124. Blue colour of sky & red colour of sunset is due to**
Ans. Dispersion
- Q. 125. PAR (Photosynthetic active radiation) measured in**
Ans. Einstein units
- Q.126. PAR is the radiation of wavelength**
Ans. 400 to 700 nanometre. (ARS 2010)

- Q.127. Albedo is highest for**
Ans. Transpiration
- Q. 128. Atmospheric phenomenon like fog and dew require a minimum percent relative humidity**
Ans. 75%
- Q.129 Average albedo of the earth**
Ans. 35%
- Q. 130. Satellites operate at the height above earth surface**
Ans. 36,000 km
- Q.131. Father of agricultural meteorology in India**
Ans. Dr. L.A. Ramdas (1900-1971)
- Q.132. NCMRWF**
Ans. National Centre for Medium Range Weather Forecasting
- Q.133. CO₂ concentration in the atmosphere is.**
Ans. 0.03% (JRF, 2012)
- Q.134. Invisible radiant energy**
Ans. Electromagnetic radiation with longer wavelength than visible light
- Q.135. Ionizing radiation**
Ans. Radiation that carries enough energy to liberate electrons from atoms or molecules
- Q.136. Hydrograph**
Ans. The science of water measurements of the earth
- Q.137. Evapotranspiration**
Ans. Evapotranspiration is the plant's total water use, it includes, the actual water loss in transpiration as well as water evaporated from the surface of the leaves or from the soil surrounding the plant.

Typical ET values of some plants in a year

1. Alfalfa - 79-91 cm
2. Soybean- 51-64 cm
3. Sorghum-46-58 cm
4. Sugar beet- 61-66 cm

FISHERIES

Q. 1. Two main zones of a sea

Ans. 1. Benthic Zone 2. Palegic Zone

Q. 2. What is Benthic Zone ?

Ans. It is the deepest part of Ocean or its area is from sea floor to the tidal effected areas.

Q. 3. Divisions of Benthic Zone

Ans.1) *Supralittoral* : The region is the area above the spring high tide line on estuaries and coastline that is regularly splashed.

2) *Littoral* : Region between low tide and high tide

3) *Sub Littoral* : Region upto 200-1000m

4) *Abyssal* : Region from 1000-4000m

5) *Hadal* : 4000m onwards

Q. 4. What are mangroves ?

Ans. These are diverse group of salt tolerant trees that grow along warm, calm marine coasts.

Q. 5. What are estuaries ?

Ans. These are bays where rivers empty into the sea.

Q. 6. What are marshs?

Ans. These are wetlands without trees

Q. 7. What are swamps?

Ans. Wetlands with trees.

Q. 8. Pelagic Zone

Ans. It is the part of the ocean or sea that is not near the coast or sea floor

Q. 9. Divisions of Pelagic Zone

Ans. 1. The neretic zone 2. Oceanic zone

Q. 10. What is luminescence

Ans. Source of Light in dark depth of sea produced by marine animals and fishes

Q. 11. Importance of luminescence

Ans. To attract prey or meet opposite sex, to keep together in large shoals in case of fishes. As recognition signs and means of communication to serve as an aid to frighten or confuse attackers.

Q. 12. Name zone between high tide and low tide

Ans. Intertidal zone

Q. 13. Important physical properties of sea water

Ans. Salinity, temperature, light, pressure, density, dissolved oxygen, Carbon dioxide and pH.

Q. 14. Important Characteristics of fishes.

Ans. 1. Cold blooded vertebrates with body suited to aquatic life.

2. Locomotion possible with the help of paired (pectoral and pelvic) and unpaired fins(dorsal, ventral and caudal).

3. Body is covered with dermal scales.

4. Respiration is possible through the Gills.

5. Skull & visceral arches are well developed.

6. Heart two chambered venous. Circulation is single type. Venous/deoxygenated blood flows through the heart.

7. Nerves are medullated

8. Lateral lines are sense organs and are well developed.

9. Middle ear is absent and internal ear is provided with the semicircular pinnas

10. Notochord mis partially replaced by vertebrate column.

11. Ventral and dorsal roots of spinal nerves are united at the base.

12. Kidney of most of the marine fish is mesonephric/metanephric. But in some cases non excretory pronephric.
13. Paired nostrils
- Q. 15. Name important group of fishes**
 Ans. Two important groups of fishes are ;
 1. Chondrichthyes (Cartilagenous) 2. Osteichthyes (Bone Fishes)
 Examples of Chondrichthyes are; Scaliodon, Rays, Rawas, Mackerel, Ribbon Fish, Bombay duck etc.
 Examples of Osteichthyes are Labeo (carp) and Cat fish.
- Q. 16. Cartilaginous fishes have pairs of Gills**
 Ans. 5 pairs
- Q. 17. Name other marine organisms of economic importance**
 Ans. Crustaceans, molluscs and algae.
- Q. 18. Crustaceans includes**
 Ans. prawns, crabs and lobsters.
- Q. 19. Largest quantity of prawns and shrimps produced by the country**
 Ans. Thailand.
- Q. 20. Preferred for food item of carp sprawn is**
 Ans. Rotifer.
- Q. 21. Largest fish catch species in India is**
 Ans. Sardin.
- Q. 22. Per capita availability of fish in India is about**
 Ans. 8 kg
- Q. 23. Maximum fish availability in the world is in**
 Ans. Asia

- Q. 24. The National fish of India is**
 Ans. Rastrelliger Kanagurta
- Q. 25. Indian coral reefs mostly found in the coasts of Indian state**
 Ans. Andman and Nicobar island
- Q. 26. Rich source of Iodine is**
 Ans. Sea weeds.
- Q. 27. The scientific name of goat fish is**
 Ans. *Upeneus sundaicus*.
- Q. 28. Study of fresh water aquaculture is termed as**
 Ans. Limnology
- Q. 29. Fish production in India in the year 2013-14 was**
 Ans. 9.5 million tonnes (provisional)
- Q. 30. Oil of fish contains high amount of**
 Ans. Vitamines
- Q. 31. Maximum fishery producing state in India**
 Ans. Kerala
- Q. 32. Silver fish is studied under**
 Ans. Entomology
- Q. 33. Length of coastline of India**
 Ans. 8,118 km (Longest coast line state is Gujarat)
- Q. 34. Percentage share of India in Fish Production**
 Ans. 5.43%
- Q. 35. Fish production is higher in the _____ sea.**
 Ans. Arabian sea due to broader continental shelf.
- Q. 36. Ichthyology**
 Ans. Ichthyology is the branch of biology devoted to the study of fish (commercial aspects) also known as *Fish Science*.
- Q. 37. National Institute of Oceanography is situated at**
 Ans. Goa

FACTS ABOUT THE EARTH

- | | |
|----------------------------------------------|---------------------------------------|
| 1. Age of the earth (Approx.) | : 46000 million years |
| 2. Mass of the earth | : 5.98×10^{24} kg |
| 3. Diameter at the equator | : 12756 km. |
| 4. Diameter at the poles | : 12713 km |
| 5. Circumference at the equator | : 40075 km |
| 6. Circumference at the Meridian | : 40007 km. (at poles) |
| 7. Surface area of the earth | : 510,072000 km ² |
| 8. Volume of the earth | : 1.083×10^{24} litres |
| 7. Total land area | : 1,48,300,000 sq. km |
| 8. Total water area | : 3,61,149,700 sq. km. |
| 9. Average distance from the sun | : 1,49,58,900 km |
| 12. Greatest ocean depth | : Pacific-Mariana Trench |
| 10. Largest Ocean | : Pacific |
| 11. Smallest Ocean | : Arctic |
| 12. Fastest rotating planet | : Jupiter |
| 13. Earth completes one rotation on its axis | : 23 hrs. 56 minutes and 4.9 seconds. |

Composition of the Earth's Crust (Weight percent)

Earth's crust is made up of many elements. The important elements & their percentage composition by weight are given below:

Oxygen (O) 46.60%	Sodium (Na) 2.83%
Silicon (Si) 27.72%	Potassium (Mg) 2.78%
Aluminium (Al) 8.13%	Magnesium (Mg) 2.09%
Iron (Fe) 5.00%	Others 1.30%
Calcium (Ca) 3.63%	

Four Distinct Spheres of the Earth

- Lithosphere** : Top crust which includes land surface and ocean floor
- Hydrosphere** : Water surface which includes oceans, seas, rivers, lakes and ponds
- Atmosphere** : Cover of air that envelops the earth's surface
- Biosphere** : Sphere where life exists.

INTERNATIONAL INSTITUTES

- AVRDC**: Asian Vegetable Research & Development Centre, Taiwan
- CABI**: Commonwealth Agriculture Bureaux International
- CABI**: Centre for Agricultural Bioscience International Wallingford Oxfordshire OX10 8DE
- CGIAR**: Consultative Group of International Agricultural Research, Washington DC (USA)
- CIAT**: Centro Internacional de Agricultura Tropical (International Centre for Tropical Agriculture), Coli- Columbia (South America).
- CIDA**: Canadian International Development Agency, Cubac
- CIFOR**: Center for International Forestry Research, Indonesia
- CIMMYT**: International Centre for the Improvement of Maize and Wheat, Mexico
- CIP**: International Potato Centre, Peru, South America
- DMI**: Directorate of Marketing Inspection FARIDABAD
- FAO**: Food and Agriculture Organization, Rome, Italy
- IBPGR**: International Board for Plant Genetics Resources, Rome, Italy
- IBRD**: International Bank for Reconstruction and Development (the World Bank), Washington DC (USA)
- IBSNAT**: International Benchmark Soils Network for Agro technology, Transfer, Hawaii
- ICARDA**: International Centre for Agricultural Research in the Dry Areas, Aleppo, Syria
- ICRAF**: International Centre for Research in Agro forestry, Nairobi, Kenya
- ICRISAT**: International Crops Research Institute for the Semi - Arid Tropics, Hyderabad Andhra Pradesh, India
- IFAD**: International Fund for Agricultural Development, Cubac
- IFDC**: International Fertilizer Development Centre, Alabama, USA

- IFPRI:** International Food Policy Research Institute, Washington DC
- IIMI:** International Irrigation Management Institute, Digana Village, Sri Lanka
- IIRB:** International Institute for Sugar Beet Research Rue Washington Brussels Belgium
- IITA:** International Institute of Tropical Agriculture, Ibadan, Nigeria
- IJSG:** International Jute Study Group, Dhaka, Bangladesh
- ILCA:** International Livestock Centre for Africa, Addis Ababa, Ethiopia
- ILRAD:** International Laboratory for Res. on Animal Diseases, Nairobi, Kenya
- ILRI:** International Livestock Research Institute, Nairobi, Kenya
- IRRI:** International Rice Research Institute, Manila, Philippines
- ISNAR:** International Service for National Agriculture Research, The Hague, Netherland
- ISSS:** International Society of Soil Sciences, Rome
- IWMI:** International Water Management Institute, Digana Village, Srilanka
- TPRI:** Tropical Pesticide Research Institute, Arushan, Tanzania
- WARDA:** West African Rice Development Association, Monrovia, Liberia
- WMO:** World Meteorological Organization, Geneva, Switzerland
- World Meteorological Day is celebrated on 23rd March, every day.

NATIONAL INSTITUTES and RESEARCH CENTRES

- BARC** Bhabha Atomic Research Centre, Trombay, **Mumbai (Maharashtra).**
- CAZRI** Central Arid Zone Research Institute, **Jodhpur, (Rajasthan)**
- CFTRI** Central Food Technological Research Institute, **Mysore, (Karnataka).**
- CIAE** Central Institute of Agricultural Engineering, **Bhopal, (Madhya Pradesh).**
- CIFA** Central Institute of Freshwater Aquaculture, **Bhubaneshwar, (Odisha)**
- CIFE** Central Institute of Fisheries Education, **Mumbai, (Maharashtra.)**
- CIFT** Central Institute of Fisheries Technology, Willingdon Island, **(Cochin, Kerala).**
- CIPET** Central Institute of Post-Harvest Engineering and Technology, PAU, **Ludhiana, (Punjab).**
- CIHNP** Central Institute of Horticulture for Northern Plains, **Lucknow, (Uttar Pradesh).**
- CIMAP** Central Institute of Medicinal and Aromatic plants, **Lucknow, (Uttar Pradesh).**
- CIRB** Central Institute for Research on Buffaloes, **Hisar, (Haryana).**
- CIRG** Central Institute for Research on Goats, **Makdoom, Mathura, (Uttar Pradesh).**

CMFRI	Central Marine Fisheries Research Institute, Cochin, (Kerala).
CPCRI	Central Plantation Crops Research Institute, Kasargod, (Kerala).
CPPTI	Central Plant Protection Training Institute, Hyderabad (Andhra Pradesh)
CPRI	Central Potato Research Institute, Shimla, (Himachal Pradesh).
CRIDA	Central Research Institute for Dry land Agriculture, Hyderabad, (Andhra Pradesh).
CRIJAF	Central Research Institute for Jute and Allied Fibres, Barrackpore, (West Bengal)
CRRI	Central Rice Research Institute, Cuttack, (Odisha)
CSIR	Council of Scientific and Industrial Research, New Delhi.
CSSRI	Central Soil Salinity Research Institute, Karnal, (Haryana).
CSWCRTI	Central Soil and Water Conservation Research and Training Institute, Dehradun, (Uttarkhand).
CSWRI	Central Sheep and Wool Research Institute, Avikanagar, (Rajasthan).
CTRI	Central Tobacco Research Institute, Rajahmundry, (Andhra Pradesh).
CTRL	Cotton Technological Research Laboratory, Matunga, Mumbai, (Maharashtra).
DARE	Department of Agricultural Research and Education, New Delhi.

DWR	Directorate of Wheat Research.
FRI	Forest Research Institute, Dehradun, (Uttarakhand).
IARI	Indian Agricultural Research Institute, New Delhi.
IASRI	Indian Agricultural Statistics Research Institute, New Delhi.
ICAR	Indian Council of Agricultural Research, New Delhi.
IGFRI	Indian Grassland and Fodder Research Institute, Jhansi, (Uttar Pradesh)
IIHR	Indian Institute of Horticultural Research, Bangalore, (Karnataka).
IIPR	Indian Institute of Pulses Research, Kanpur, (Uttar Pradesh).
ILRI	Indian Lac Research Institute, Namkum, Ranchi, (Jharkhand)
IVRI	Indian Veterinary Research Institute, Izatnagar, (Uttar Pradesh)
JARI	Jute Agricultural Research Institute, Barrackpore, (West Bengal)
MANAGE	National Institute of Agricultural Extension Management, Hyderabad, (Andhra Pradesh)
NBAGR	National Bureau of Animal Genetic Resources, Karnal, (Haryana)
NBPGR	National Bureau of Plant Genetic Resources, New Delhi.
NAARM	National Academy of Agricultural Research Management, Hyderabad, (Andhra Pradesh).

NAFED	National Agricultural Co-operative and Marketing Federation of India.
NARP	National Agricultural Research Project.
LUP	Land use Planning, Nagpur, (Maharashtra)
NDRI	National Dairy Research Institute, Karnal, (Haryana).
NIAG	National Institute of Animal Genetics, Karnal, (Haryana)
PRII	Potash Research Institute of India, Gurgaon, (Haryana)
SBI	Sugarcane Breeding Institute, Coimbatore, (TamilNadu)
VPKAS	Vivekananda Parvatriya Krishi Anusandhan Shala, Almora, (Uttar Pradesh).
NSRTC	National Seed Research and Training Centre Varanasi (U.P.)
NIASM	National Institute Abiotic Stress Management, Malegaon Baramati (Maharashtra)
NIOT	National Institute of Ocean Technology Chennai (Tamilnadu)
NIAM	National Institute of Agricultural Marketing (JAIPUR) (Raj.)
NIPGR	National Institute of Plant Genome Research New Delhi.

ICAR INSTITUTES

National Institutes

1. Indian Agricultural Research Institute, Pusa Campus, **New Delhi-110012.**
2. Indian Veterinary Research Institute, **Izatnagar, Uttar Pradesh (243 122).**
3. National Dairy Research Institute, **Karnal, Haryana (132 001)**
4. Central Institute of Fisheries Education, **Mumbai, Maharashtra (400 058).**

Agricultural Sciences

5. Central Agricultural Research Institute, Andaman and Nicobar Group of Islands, Port Blair, **Andamans.**
6. Central Institute of Agricultural Engineering, Nabhibagh, **Bhopal. Madhya Pradesh (462 038)**
7. Central Institute for Cotton Research, **Nagpur. Maharashtra (440 010).**
8. Central Institute of Post-Harvest Engineering and Technology, (P.O. PAU), **Ludhiana, Punjab (141 004).**
9. Central Institute for Research and Cotton Technology. **Matunga, Mumbai, Maharashtra (400 019)**
10. Central Institute for Sub-tropical Horticulture, **Rehmankhara, P.O. Kakori, Lucknow, Uttar Pradesh (227 107)**
11. Central Institute for Temperate Horticulture, (P.O. Sanat Nagar), **Srinagar, Jammu and Kashmir (190 005).**
12. Central Plantation Crops Research Institute, **Kasaragod, Kerala (671 124).**

13. Central Potato Research Institute, Shimla Himachal Pradesh (171 001).
14. Central Research Institute for Dryland Agriculture, (P.O. Santosh Nagar), Hyderabad, Andhra Pradesh (500 059)
15. Central Research Institute for Jute and Allied Fibers, Nilgang, Barrackpore, West Bengal (743 101).
16. Central Rice Research Institute, Cuttack, Odisha (753 006)
17. Central Soil Salinity Research Institute, Karnal, Haryana (132 001).
18. Central Soil and Water Conservation Research and Training Institute, Kaulagarh Road, Dehra Dun, Uttar Pradesh (248 195).
19. Central Tobacco Research Institute, Rajahmundry, Andhra Pradesh (533 105)
20. Central Tuber Crops Research Institute, Shreekariyam, Thiruvananthapuram, Kerala (695 017).
21. Central Institute of Arid Horticulture, Bikaner (334 006) (Rajasthan).
22. Central Arid Zone Research Institute, CAZRI, Jodhpur
23. ICAR Research Complex for Eastern Region including for Makhana, Patna
24. Central Institute of Natural Resources, Ranchi
25. Indian Agricultural Statistics Research Institute, library Avenue, Pusa, New Delhi (110 012).
26. Indian Grassland and Fodder Research Institute, Jhansi, Uttar Pradesh (248 004)
27. Indian Institute of Horticultural Research, (P.O. Hessarghatta, Leke, Bangalore, Karnataka (560 089)

28. Indian Institute of Pulses Research, Kanpur, Uttar Pradesh (208 024).
 29. Indian Institute of Soil Science, Nabhibagh, Bhopal, Madhya Pradesh (462 038).
 30. Indian Institute of Spices Research, (P.O. Markiunnu), Calicut, Kerala (673 012)
 31. Indian Institute of Sugarcane Research, Lucknow, Uttar Pradesh (226 002).
 32. Indian Lac Research Institute, Ranchi, Bihar (834 010)
 33. Indian Institute of Vegetable Research, 1, Ganghinagar Naira, Post Box No. 5002, VBHU, Varanasi, Uttar Pradesh (221 005).
 34. National Institute of Research on Jute and Allied Fibre Technology, 12 Regent Park, Kolkata, West Bengal.
 35. Sugarcane Breeding Institute, Coimbatore, Tamil Nadu.
- Animal Sciences and Fisheries**
36. Central Avian Research Institute, Izatnagar, Uttar Pradesh (243 122)
 37. Central Inland Capture Fisheries Research Institute, Barrackpure, West Bengal (743 101).
 38. Central Institute of Brackish water Aquaculture, Chennai, Tamil Nadu (600 034)
 39. Central Institute of Fisheries Technology, (P. O. Matsyapuri), Cochin, Kerala (682 014).
 40. Central Institute of Freshwater Aquaculture, Kausalyaganga, Bhubaneswar, Orissa (751 002).
 41. Central Institute for Research on Buffaloes, Sirsa Road, Hissar, Haryana (125 001).
 42. Central Institute for Research on Goats, Makhdoom, (P.O. Farah) Uttar Pradesh (281 122).

43. Central Marine Fisheries Research Institute, Cochin, Kerala (682 014).
44. Central Sheep and Wool Research Institute, Avikanagar, Tonk Via Jaipur (Rajasthan) (304 501)
45. National Institute of Animal Nutrition and Physiology, (Aduodi) Bangalore, Karnataka (560 030).

Others

46. National Academy of Agricultural Research and Management, Hyderabad, **Andhra Pradesh** (500 030).
47. National Center for Integrated Pest Management (NCIP), **New Delhi**
48. Vivekananda Parvatiya Krishi Anusandhan Sansthan. Almora, **Uttarakhand**.

NATIONAL BUREAUS

1. National Bureau of Plant Genetic Resources, **New Delhi** (110 012).
2. National Bureau of Soil Survey and Land Use Planning, **Nagpur**, Maharashtra
3. National Bureau of Animal Genetic Resources, **Karnal**, Haryana.
4. National Bureau of Fish Genetic Resources, **Lucknow**, Uttar Pradesh.
5. National Bureau of Agriculturally Important Micro Organisms, **Mau, Nath Bhanjan**, Uttar Pradesh.
6. National Bureau of Agriculturally Important Insects **Bengaluru**

PROJECT DIRECTORATES

Agricultural Sciences

1. Project Directorate of Cropping Systems Research, **Meerut**, Uttar Pradesh
2. Project Directorate of Oilseeds Research, **Hyderabad**, Andhra Pradesh.
3. Project Directorate of Rice Research, **Hyderabad**, Andhra Pradesh.
4. Project Directorate of Wheat Research, **Karnal**, Haryana.
5. Project Directorate of Biological Control, **Bengaluru**, Karnataka.
6. Project Directorate on Maize, Cummings Laboratory, Indian Agricultural Research Institute, **New Delhi**.
7. Project Directorate on Soybean Processing and Utilization, **Indore**, Madhya Pradesh.
8. Project Directorate of Water Management Research.
9. Directorate of Mushroom Research, Solan, **Himachal Pradesh**
10. Directorate of Sorghum Research, **Hyderabad**
11. Directorate of Oil Palm Research Pedavegi, West Godavari, **Andhra Pradesh**.
12. Directorate of Cashew Research, **Puttur**, Karnataka.
13. Project Director for Farming Systems Research, **Modipuram**
14. Directorate of Weed Science Research, **Jabalpur**
15. Directorate of Groundnut Research **Junagadh**

Animal Sciences

16. Project Directorate on Cattle, **Meerut**, Uttar Pradesh.
17. Project Directorate on Poultry, **Hyderabad**, Andhra Pradesh.
18. Project Directorate on Animal Disease Monitoring and Surveillance (PDADMS). **Bengaluru**.
19. Project Directorate on Foot and Mouth Diseases (PDFMD). **Mukteshwar**.
20. Directorate of Coldwater Fisheries Research, **Bhimtal**, **Uttarakhand**

NATIONAL RESEARCH CENTRES**Agricultural Sciences**

1. National Research Centre for Agro forestry, Pahuj dam, Gwalior Road, **Jhansi**, Uttar Pradesh (284 003).
2. National Research Centre for Arid Horticulture, Ganga Nagar Road, **Bikaner** (Rajasthan) (334 006)
3. National Research Centre for Banana, Vayalaur Road, **Tiruchirapali**, Tamil Nadu (620 017).
4. National Research Centre for Cashew. **Puttur**, Karnataka (574 202).
5. National Research Centre for Citrus, P.O. Sankar Nagar, **Nagpur**, Maharashtra (440 010).
6. National Research Centre for Grapes, Manjari Post, **Pune**, Maharashtra (412 307).
7. National Research Centre for Groundnut, **Junagadh**, Gujarat (362 001).
8. National Research Centre for Integrated Pest Management, Lal Bahadur Shatri Bhawan, New **Delhi** (110 012).
9. National Research Centre for Litchi. **Muzaffarpur (Bihar)**.
10. National Research Centre for Makhana, **Patna (Bihar)**
11. National Research Centre for Medicinal and Aromatic Plants, Boriabi, **Anand**, Gujarat (387 310)
12. National Research Centre for Mushroom Research and Training, Chamba ghat, **Solan**, Himachal Pradesh (173 213).

13. National Research Centre for Oilpalm, Pedavegi, **Eluru**, Andhra Pradesh (West Godavari) (534 450)
14. National Research Centre for Onion and Garlic, Raj Guru Nagar, **Pune**, Maharashtra (410 505).
15. National Research Centre for Orchids, Gangtok, Pakyang, **Sikkim** (737 106).
16. National Research Centre on Plant Biotechnology, IARI Campus **New Delhi** (110012).
17. National Research Centre for Rapeseed and Mustard, Sewar **Bharatpur**, Rajasthan (321 301)
18. National Research Centre for Sorghum, **Hyderabad**, Andhra Pradesh
19. National Research Centre on Soybean, Khandawa Road, **Indore**, Madhya Pradesh (452 017).
20. National Research Centre for Water Technology Eastern Region, Chandrasekharpur, (P.O. South Eastern Railway Project Complex) **Bhubaneshwar**, Orissa (751 023).
21. National Research Centre for Weed Science, **Jabalpur**, Madhya Pradesh.
22. National Research Centre on DNA Finger Printing, **New Delhi**.

Animal Sciences and Fisheries

23. National Research Centre on Camel, **Bikaner** (Rajasthan) (334 001)
24. National Research Centre for Coldwater Fisheries, Saurabh Cittance, Bhimtal, **Nainital**, Uttarakhand (263 136).
25. National Research Centre for Equines, Sirsa Road, **Hisar**, Haryana (125 001).
26. National Research Centre on Meat and Meat Products, ANGRAU, **Hyderabad**, Andhra Pradesh (500 030).

27. National Research Centre on Mithun, Jharnapani, Kohima, **Nagaland** (797 106).
28. National Research Centre on Yak, West Kaurang, Dirang, **Arunachal Pradesh** (740 101).
29. National Research Centre for High Security Disease Lab: **Bhopal** (M.P.).
30. National Research Centre for Pest Management: (NCIPM) **New Delhi**

Others

31. National Research Centre for Agricultural Economics and Policy, Library Avenue, **New Delhi** (110012).
32. National Research Centre for Women in Agriculture, **Bhubaneshwar**, Odisha.
33. National Research Centre on Pomergranate, **Sholapur** (Maharashtra)

**PREVIOUS YEARS QUESTIONS ON MEMORY BASED
(ASKED IN DIFFERENT EXAMINATIONS) LIKE J.R.F.
& I.A.R.I Ph.D. EXAMS & B.H.U., Ph.D. & P.G.
EXAM., (1991-2016)**

JRF (Papers-2015)

- Q. 1. Total food grain production of country in 2014-**
Ans. 264.67 MT (BHU 2014, JRF 2015)
- Q. 2. Country leader in wheat production-**
Ans. China (RAU PG 2014, JRF 2015)
- Q. 3. State no. 1 in pulses & oilseeds production**
Ans. M.P. (RAU PG 2013, JRF 2015)
- Q. 4. Bale size of jute-**
Ans. 180 Kg. (JRF 2011, 2015)
- Q. 5. Forest research Institute (FRI) established in year-**
Ans. 1900 (JRF 2009, 2015)
- Q. 6. NAFED was established in year-**
Ans. Oct 1958 (JRF 2007, 2015)
- Q. 7. NAIP was established in year-**
Ans. July 2006 (JRF 2008, 2015)
- Q. 8. ARS was established in year-**
Ans. 1973 (JRF 2006, 2015)
- Q. 9. IARI shifted to New Delhi-**
Ans. 1936 (JRF 1997, 2001, 2015)
- Q. 10. Gross cropped area of India-**
Ans. 193 mha (JRF 1995, 99, 2001, 2015)

- Q. 11. Average yield per/ha of Rice -**
Ans. 2461 Kg./ha. (RAU PG 2013, JRF 2015)
- Q. 12. State having highest area under Maize Production in 2013-14**
Ans. Karnataka (JRF 2015)
- Q. 13. India's percent share contribution in world production of Sugar cane-**
Ans. 19.60% (JRF 2015)
- Q. 14. What was Nutrient Base Subsidy (NBS) for Phosphorous in 2014-15 -**
Ans. Rs.18.67/Kg. (JRF 2015)
- Q. 15. Minimum support price for grade A paddy in 2014-15**
Ans. 1400/Qtl (JRF 2015)
- Q. 16. Per capita availability of cereals in India**
Ans. 423.5 gm./Day (JRF 2008)
- Q. 17. State soils having highest % of Zinc deficiency in India-**
Ans. Maharashtra (RAU 2014, JRF 2015)
- Q. 18. RBI was established in year-**
Ans. 1935 (JRF 2006, 2010, 2015)
- Q. 19. Indian institute of vegetable research (IIVR) situated at-**
Ans. Varanasi (BHU 2015, JRF 2015)
- Q. 20. NBARI is situated at-**
Ans. Bangalore (JRF & BHU 2015)
- Q. 21. Dr. NE Borlaug was basically a-**
Ans. Plant Pathologist (JRF 2009, 2015)
- Q. 22. N P K use ratio during 2013-14**
Ans. (N) 8.0 : (P) 2.7 : (K) 1 (JRF 2015)

- Q. 23. State first in highest area in drip irrigation**
 Ans. Maharashtra (BHU 2014, JRF 2015)
- Q. 24. Maize breeder who was awarded by WFO in 2000**
 Ans. S.K. Vashal (BHU 2014, JRF 2015)
- Q. 25. MRP fixed for DAP in 2013-14-**
 Ans. Rs.20000 to 20123/tone (JRF 2015)
- Q. 26. Average size of operational holdings by medium farmers-**
 Ans. 5.76 ha. (JRF 2015)
- Q. 27. Father of golden revolution-**
 Ans. Dr. K.L. Chadda (JRF 2015)
- Q. 28. Percent share of total cropped area for Mango**
 Ans. 0.69% (JRF 2015)
- Q. 29. National Mission on Micro Irrigation (NMMI) started on-**
 Ans. 2010 (JRF 2015)
- Q. 30. Total No. of institute under ICAR at present-**
 Ans. 60 (JRF 2015)
- Q. 31. Genetically modified rice is-**
 Ans. Golden Rice (JRF 2015)
- Q. 32. Cobalomite is known as-**
 Ans. Vitamin B12 (JRF 2015, BHU 13)
- Q. 33. Anemia is caused by-**
 Ans. Folic acid (JRF 2015)
- Q. 34. Part of opium poppy used for medicinal use-**
 Ans. Fruit (JRF 2015, RAU 13)
- Q. 35. Hormone responsible for ripening of fruits-**
 Ans. Ethylene (JRF, 2008, 2015)

- Q. 36. No of essential amino acid-**
 Ans. 10 (JRF 2015, BHU2009,)
- Q. 37. Kishan Day is celebrated on-**
 Ans. 23rd Dec (JRF 2015, BHU 12)
- Q. 38. Diara cultivation method is associated with-**
 Ans. Cucurbits (JRF 2015)
- Q. 39. Most common method of irrigation in India-**
 Ans. Surface irrigation (JRF, 2008, 2015)
- Q. 40. Bio fertilizer for rice-**
 Ans. Azolla (JRF 2015, RAU PG 08,11)
- Q. 41. Plants of no economic importance for human being called-**
 Ans. Absolute weed (JRF 2015)
- Q. 42. Vegetable which is highly sensitive for boron toxicity-**
 Ans. Cabbage (JRF 2015, RAU PG 06,11)
- Q. 43. Development of embryo without fertilization is called-**
 Ans. Apomixes (JRF, 011, 2015)
- Q. 44. Major disease of mango-**
 Ans. powdery mildew (JRF 2015)
- Q. 45. Pineapple is a variety of-**
 Ans. Sweet orange (JRF 2015)
- Q. 46. Punjab chhuhara is a variety of-**
 Ans. Tomato (JRF 2015)
- Q. 47. Red colour of chili is due to-**
 Ans. Capcyanthin (JRF 2015, 2009)
- Q. 48. NPV is mostly used to control-**
 Ans. Lepidoptera insects (JRF2015, BHU 2014)

- Q. 49. Safe insecticide for vegetable is-**
 Ans. Malathion (JRF2015, BHU 2014)
- Q. 50. Widely used fungicide in India is-**
 Ans. Mencozeb (JRF 2015)
- Q. 51. Half of the world raisins supplied from-**
 Ans. California (JRF 2015)
- Q. 52. Horizontal flow of water channel is called-**
 Ans. Seepage (BHU 2008, JRF 2015, 2006)
- Q. 53. Rice dwarf variety which was first developed in world-**
 Ans. TN-1 (Taiwan) (JRF 2015)
- Q. 54. Seed rate of hybrid rice-**
 Ans. 15 Kg./Ha (RAU PG 07, BHU PG 09, JRF 2015)
- Q. 55. Benthocarb is a type of herbicide-**
 Ans. Pre emergence (RAU PG 2006, JRF 2015)
- Q. 56. Transition zone between root and shoot is known as-**
 Ans. CRI Stage (BHU PG 2013, JRF 2015)
- Q. 57. Which type of wheat is used for Suji-**
 Ans. T. durum (JRF 2008, 2015)
- Q. 58. Rabi maize is extensively grown in state-**
 Ans. Bihar (JRF 2009, 2015)
- Q. 59. Top most mineral horizon is-**
 Ans. A Horizon (JRF 2004, 07, 2015)
- Q. 60. Crop having highest tolerance to Boron-**
 Ans. Sugar beet (BHU 2011, JRF 2015)
- Q. 61. Property of soil which can't be changed-**
 Ans. Soil Texture (RAU PG 2004,10, JRF 2006, 2015)

- Q. 62. Fertilizer which are higher leaching loss-**
 Ans. Nitrate fertilizers (JRF 2006, 2015 BHU 2008)
- Q. 63. Potassium nitrate contains percentage of N**
 Ans. 13% N (JRF 2006, 15 BHU 2009, 2015)
- Q. 64. Red colour in tomato is due to-**
 Ans. Lycopine (RAU PG 2008, BHU 2006, JRF 2015)
- Q. 65. Commercial propagation of rose is done by-**
 Ans. Shield Budding (JRF 2003, 2015)
- Q. 66. First seedless variety of Mango-**
 Ans. Sindhu (JRF 2011, 2015)
- Q. 67. Scooping is most common practices in crop-**
 Ans. Cauliflower (JRF 2015)
- Q. 68. Insects having Siphoning type mouth parts-**
 Ans. Butterfly & Moths (JRF2015, BHU 2008, 11)
- Q. 69. Nation center for IPM is situated at-**
 Ans. New Delhi (RAU PG 2013, 2015)
- Q. 70. The effective new fungicide for control of Oomycetous fungus is-**
 Ans. Metalaxyl (JRF15, BHU 2015)
- Q. 71. Percentage share of Agri imports in national imports in 2013-14**
 Ans. 4.09% (JRF 2015)
- Q. 72. World food day is celebrated on -**
 Ans. 16th Oct (JRF 2015)
- Q. 73. Simplest measure of dispersion-**
 Ans. Range (JRF 207,09, 2015)
- Q. 74. What is median of 3,4,5,6,7,8,9**
 Ans. 6 (JRF 2015)

Q. 75. Which is used for calculating average speed-

Ans. Harmonic mean (JRF2004,07,10, 2015)

JRF (Papers-2014)

Q.76. Constitution of NCF(National Commission of Farmers) in year

Ans. 18 Nov. 2004 (JRF 2014)

Q.77. Director General of ICAR

Ans. Dr. S. Ayyappan (JRF 2014)

Q.78. No. of KVK's are in India in year 2013

Ans. 630 (JRF 2014, RAU PG 2014)

Q.89. How many nutrients are included under nutrient based subsidy

Ans. 4 (JRF 2014)

Q.80. What is Nutrient Base Subsidy (NBS) for Nitrogen in 2013-14

Ans. Rs.20.87/Kg. (JRF 2014)

Q.81. Average rainfall of the country is

Ans. 1194mm (JRF 2014)

Q.82. Element which is responsible for osmotic and ionic balance in plants

Ans. K (JRF 2014)

Q.83. Browning of cauliflower disease caused due to

Ans. Mo Deficiency (JRF 2014)

Q.84. Bean common mosaic disease caused by

Ans. Pot virus (JRF 2014)

Q.85. Laghaemoglobin pigment present in

Ans. Root nodules of legumes (JRF 2014)

Q.86. Wolf apple is common name of

Ans. Tomato (JRF 2014)

Q.87. KVK awarded by Best KrishiVigyan Kendra award in 2013

Ans. Dhakrani, Dehra Dun (JRF 2014)

Q. 88. ICAR Normon Borlaug Award given in time of years

Ans. Once in 5 Years (JRF 2014)

Q.89. Bt cotton mainly attacked by which type group of insects

Ans. Sucking type pest (JRF 2014)

90. Indian village scheme is associate with person

Ans. S.N. Gupta (JRF 2014)

Q. 91. National Farmers day is celebrated on

Ans. First Friday of Dec. (JRF 2014)

Q.92. Plant known as a dairy plant also is

Ans. Soybean (JRF 2014)

Q.93. Most common bulb vegetables crops are

Ans. Onion & Garlic (JRF 2014)

Q.94. Record that is used for maintaining relationship between parents and offspring's is

Ans. Pedigree Record (JRF 2014)

Q. 95. Pusa Chamtkar is variety of

Ans. Chick Pea (JRF 2014)

Q.96. Throne less variety of Rose is-

Ans. Chitra (JRF 2014)

Q.97. Most recently formed soils are

Ans. Alluvial Soils (JRF 2014)

Q.98. India's rank in Rice production-

Ans. Second (JRF 2014)

Q. 99. Sugar recovery in Sugarcane in India is

Ans. 6-8% (JRF 2014)

- Q.100. The curve of Normal Distribution is**
 Ans. Bell shaped curve (JRF 2014, 2009)
- Q. 101. Correlation coefficient varies between-**
 Ans. 1 to +1 (JRF 2014, 2011, 2007, 2004)
- Q. 102. Directorate of Mushroom Research situated at**
 Ans. Solan (H.P.) (JRF 2014, 2005)
- Q. 103. Father of Plant tissue culture**
 Ans. H.Haberlandt (JRF 2014)
- Q.104. NREGA was started in year**
 Ans. 2006 (JRF 2014)
- Q.105. 1st Vegetable crop which is under Bt approval in India is**
 Ans. Brinjal (JRF 2014)
- Q. 106. Bhima Super variety which has released by ICAR is a variety of**
 Ans. Onion (JRF 2014)

OLD QUESTIONS

- Q.107. First Indian Director of IARI was.**
 Ans. Dr.B. Vishvanath (J.R.F. 1994)
- Q. 108. Father of Modern plant pathology.**
 Ans. Anton de Bary (Ph.D. 1997)
- Q. 109. Bordeaux mixture was developed by.**
 Ans. P. M. A. Millardet (J.R.F. 1995)
- Q. 110. Wart disease of potato is caused by.**
 Ans. Synchitriem endobioticum (J.R.F. 1994)
- Q. 111. Nitrogen fixation in rice field is carried out by which blue green algae.**
 Ans. Azolla (Ph.D. 1997)
- Q. 112. Total area of India is.**
 Ans. 32,87263 sq. km. (J.R.F. 1994)

- Q. 113. Forest area in India**
 Ans. 19.39% (Ph.D. 1998) (J.R.F. 2003)
- Q. 114. Which country tops in the sugar production.**
 Ans. India (J.R.F. 1994)
- Q. 115. Which state is highest producer of Rice.**
 Ans. West Bengal (Ph.D. 1997)
- Q. 116. In India which state is leading sugar producer.**
 Ans. Uttar Pradesh (J.R.F. 1995)
- Q. 117. The most critical stage during the growth of wheat is.**
 Ans. CRI stage (J.R.F. 1994, 2003) (A.R.S. 2009)
- Q. 118. Urea contains% of Nitrogen.**
 Ans. 46% (J.R.F. 1995) (J.R.F. 2003)
- Q. 119. Pusa ruby is a variety of crop.**
 Ans. Tomato (J.R.F. 2001)
- Q. 120. Net sown area of India is.**
 Ans. 162 millions hectare.
- Q. 121. Gross cropped area of India is.**
 Ans. 193, million hectare (J.R.F. 1995)
- Q. 122. KVK was recommended by which committee.**
 Ans. Mohan Singh Mehta Committee (Ph.D. 1997)
- Q. 123. Inflorescence of sugarcane is known as.**
 Ans. Arrow (J.R.F. 1994)
- Q. 124. Red colour of tomato is due to.**
 Ans. Lycopersicon (J.R.F. 1994)
- Q. 125. Richest source of Vitamin C is.**
 Ans. Barbados cherry (Ph.D. 1997)
- Q. 126. Which Indian scientist shared world food prize for miracle maize.**
 Ans. Dr. Sruinder K. Vasal (Ph.D. 1999)

- Q. 127. Power tiller is most suitable for the cultivation of.
Ans. Paddy (J.R.F.1994)
- Q. 128. Harvesting of Paddy is done at moisture content.
Ans. 21-23% (Ph.D. 1997)
- Q. 129. National Seed Corporation was established in.
Ans. 1963 (J.R.F. 1995)
- Q. 130. National Seed act was passed in the year
Ans. 1966 (J.R.F. 1994,1998)
- Q. 131. Loose smut of wheat is.
Ans. Internally seed borne. (J.R.F. 1995)
- Q. 132. Tz test is done for.
Ans. Viability & Vigour (Ph.D. 1997)
- Q. 133. Establishment of NABARD.
Ans. 12 July, 1982 (J.R.F. 2001)
- Q. 134. Cereals are deficient in which amino acid.
Ans. Lysine (J.R.F. 1994)
- Q. 135. Harvest index is.
Ans. Economic yield/Biological yield \times 100 (J.R.F. 1998)
- Q. 136. Kresek in rice is caused by.
Ans. Xanthomonas oryzae (Ph.D. 1997)
- Q. 137. Gressy shoot disease of sugarcane is caused by.
Ans. Mycoplasma (J.R.F. 1994)
- Q. 138. Bunchy top of Banana is caused by.
Ans. Virus (J.R.F. 1995)
- Q. 139. Which oil seed crop leads in the production.
Ans. Ground nut (33%) (J.R.F. 2001)
- Q. 140. Which state has highest production of soyabean in India.
Ans. Madhya Pradesh (J.R.F. 1998)

- Q. 141. Which state in India is the leading producer of coffee.
Ans. Karnataka (J.R.F. 1994)
- Q. 142. The name of the macaroni wheat is.
Ans. Triticum durum (Ph.D. 1997)
- Q. 143. Hand refractometer reading for sugarcane maturity is.
Ans. 20 (J.R.F. 1995)
- Q. 144. Which portion of cane is best suited to be used as seed/set.
Ans. Top 1/3rd to 1/2 (J.R.F. 2001) (J.R.F. 2003)
- Q. 145. In mango edible part is called
Ans. Mesocarp (Ph.D. 1997)
- Q. 146. Amino acid which is deficient in legumes
Ans. Methionine (J.R.F. 1994)
- Q. 147. The plants growing in salt water are known as.
Ans. Halophites (J.R.F. 1995)
- Q. 148. Granite is rock.
Ans. Igneite (J.R.F. 2001)
- Q. 149. Sugarcane is plant.
Ans. C₄ (J.R.F.1994) (Ph.D. 1997)
- Q. 150. Kresek symptom is present in.
Ans. Bacterial Leaf Blight (J.R.F. 1995)
- Q. 151. Pahala blight of sugarcane is caused due to deficiency of.
Ans. Mn (J.R.F. 1995)
- Q. 152. Reclamation disease due to deficiency of.
Ans. Cu (Ph.D. 1997)
- Q. 153. Contribution of live stock to agriculture GDP.
Ans. 25% (J.R.F. 1994)

- Q. 154.** What is the amount of fertilizers consumed in India annually.
 Ans. 19 million tones (J.R.F. 2001)
- Q. 155.** The term Green Revolution was coined by.
 Ans. William Gudd (J.R.F. 1998)
- Q. 156.** R.B.I. was established in which year.
 Ans. 1935 (Ph.D. 1997)
- Q. 157.** Central Soil Salinity Research Institute is situated at.
 Ans. Karnal (J.R.F. 1994, 2003)
- Q. 158.** Late blight of potato is caused by.
 Ans. Phytophthora infestans (Ph.D. 1999)
- Q. 159.** Hormone related to drought tolerance is.
 Ans. Abscisic acid (Ph.D. 1997)
- Q. 160.** Apical bud dominance is caused by which hormone.
 Ans. Auxin (J.R.F. 1994)
- Q. 161.** A hormone used as a herbicide.
 Ans. 2,4-D (J.R.F. 2001)
- Q. 162.** Proteins are made up of.
 Ans. Amino acids (Ph.D. 1997)
- Q. 163.** How many nutrients are termed as essential elements for plants.
 Ans. 17 (Ph.D. 2002)
- Q. 164.** Translocation of water and nutrients from roots to above ground parts of plants takes place through.
 Ans. Xylem (J.R.F. 1994)
- Q. 165.** Causal agent of mad cow disease is.
 Ans. Priens (Ph.D. 1999)

- Q. 166.** Dormancy breaking hormone is.
 Ans. Cytokinin (J.R.F. 2001)
- Q. 167.** Total registered pesticide in India is.
 Ans. 164 (J.R.F. 1994)
- Q. 168.** ICAR day is celebrated on.
 Ans. 16th July (Ph.D. 1999)
- Q. 169.** ICRISAT is situated at.
 Ans. Hyderabad (J.R.F. 1996)
- Q. 170.** Double helical structure of DNA was given by.
 Ans. Watson & Crick (J.R.F. 1994)
- Q. 171.** Which wind cause rainfall in Taminadu.
 Ans. North East monsoon (J.R.F. 2001)
- Q. 172.** Ring worm disease is caused by.
 Ans. Fungus (J.R.F. 1994)
- Q. 173.** Total number of KVK in India till 2007.
 Ans. 551 (Ph.D. 2002)
- Q. 174.** National Agriculture insurance scheme was introduced in the year.
 Ans. 1999-2000 (Rabi) (Ph.D. 2002)
- Q. 175.** Who discovered Vitamin.
 Ans. Funk (J.R.F. 1994)
- Q. 176.** Theory of evolution was given by.
 Ans. Charles Darwin (Ph.D. 1999)
- Q. 177.** Laws of heredity was given by.
 Ans. Gregor Mendal (B.H.U. Pre P.G. 2002)
- Q. 178.** Instrument used to measure atmospheric pressure.
 Ans. Barometer (J.R.F. 1994) (J.R.F. 2003)
- Q. 179.** Mycorrhiza is a symbiotic association between.
 Ans. Fungi & roots of higher plants (J.R.F. 1996)

Q. 180. Growing of plants under soil less condition is called.

Ans. Hydroponics (J.R.F. 1994)

Q. 181. Stress hardening in plants can be active by.

Ans. ABA (J.R.F. 2001)

Q. 182. Flowering hormone used in pineapple.

Ans. $H_2C = CH_2$ (J.R.F. 1994)

Q. 183. Photo respiration is process.

Ans. Energy Spending (Ph.D. 1999)

Q. 184. The major form of transport carbohydrate in higher plant is.

Ans. Sucrose (Ph.D. 2002)

Q. 185. Element contributing to the disease & drought resistance.

Ans. Potassium (J.R.F. 1998)

Q. 186. Khaira disease is caused by the deficiency of.

Ans. Zn (J.R.F. 2001, 2003)

Q. 187. Little leaf of citrus is caused by.

Ans. Zn deficiency (Ph.D. 2002)

Q. 188. Complex disease in association with nematode.

Ans. Yellow ear rot (B.H.U. Pre P.G. 2002)

Q. 189. Solar heat treatment is recommended against.

Ans. *Ustilago segetum tritici* (J.R.F. 1996)

Q. 190. The element involved in energy transfer and storage in plants is.

Ans. Phosphorus (J.R.F. 2001)

Q. 191. Muriate of Potash (MOP) is chemically.

Ans. KCl (B.H.U. Pre P.G. 2002)

Q. 192. Maximum allowable Biurate content of Urea is.

Ans. 1.5% (J.R.F. 2003)

Q. 193. For the maximization of net revenue the condition is.

Ans. $\frac{\Delta YI}{\Delta XI} = \frac{PXI}{PYI}$ (Ph.D. 1999)

Q. 194. Over the years the contribution of Agriculture to GDP of Indian economy has been.

Ans. Decreasing (Ph.D. 2002)

Q. 195. On the indifference curve, the utility is.

Ans. Constant (Ph.D. 1999)

Q. 196. The 'U' shape of cost curves could be best explained by the law of.

Ans. Variable properties (Ph.D. 2002)

Q. 197. For the consumer to be in equilibrium the necessary condition is that the ratio of.

Ans. Marginal utilities is equal to price ratio (Ph.D. 1999)

Q. 198. Indifference curve approach could be attributed to.

Ans. Hicks (Ph.D. 2002)

Q. 199. Pineapple is a plant.

Ans. CAM (J.R.F. 1995)

Q. 200. In the tropical climate plants are more produced.

Ans. C_4 plants (Ph.D. 1998)

Q. 201. Mg^{+2} is component of.

Ans. Chlorophyll (J.R.F. 2003) (Ph.D. 1999)

Q. 202. Heart rot of sugarbeet is caused by.

Ans. Boron deficiency (J.R.F. 1995)

Q. 203. 2, 4- D is used for type weeds control.

Ans. Broad leaf (B.H.U. Pre P.G. 2002)

- Q. 204.** The berry size of Thomson Seedless grapes increased by the hormone.
 Ans. GA_3 (Ph.D. 1998)
- Q. 205.** The optimum spacing for wheat is (line to line).
 Ans. 22.5cm. (J.R.F. 1995)
- Q. 206.** The non traditional area for cultivating wheat is.
 Ans. Eastern India (B.H.U. Pre P.G. 2002)
- Q. 207.** The all India average for wheat yield is.
 Ans. 12-14 qt/ha (Ph.D. 2002)
- Q. 208.** The haploid number of chromosome in rice is.
 Ans. 12 (Ph.D. 1998)
- Q. 209.** Rice is considered as a plant.
 Ans. Short day plant (J.R.F. 1996)
- Q. 210.** The optimum depth of puddling in rice is.
 Ans. 5 cm (Ph.D. 2002)
- Q. 211.** In wet nursery for rice, the level of water is maintained at.
 Ans. 5 cm. (B.H.U. Pre P.G. 2002)
- Q. 212.** In field paddy grains is harvested when percent moisture is.
 Ans. 20-25% (J.R.F. 1996)
- Q. 213.** Total water requirement of the sugarcane crop is.
 Ans. 200-300 cm. (J.R.F. 1995)
- Q. 214.** Sugarcane is irrigated every days during its growing period.
 Ans. 8-12 days (J.R.F. 1996)
- Q. 215.** In India, the predominant species of cultivated cotton is.
 Ans. *G. hirsutum* (B.H.U. Pre P.G. 2002)

- Q. 216.** Regurs refers to.
 Ans. Black soil (Ph.D. 1998)
- Q. 217.** Vitamin C also known as
 Ans. Ascorbic acid (A.R.S. 2007)
- Q. 218.** N content of F.Y.M. and Urban compost respectively is.
 Ans. 0.5 and 1.4% (B.H.U. Pre P.G. 2002)
- Q. 219.** Major P fertilizer in India is.
 Ans. DAP (J.R.F. 1995)
- Q. 220.** Salation is a type of.
 Ans. Wind erosion (J.R.F. 1996)
- Q. 221.** Very few poor (below poverty line) people is in.
 Ans. Punjab (J.R.F. 1991)
- Q. 222.** Biologically active form of glucose is.
 Ans. D-form (Ph.D. 1998)
- Q. 223.** The bond present in sugars.
 Ans. Phosphodiester bond (Ph.D. 1999)
- Q. 224.** The most abundant protein present in the world is.
 Ans. Rubisco (J.R.F. 1995)
- Q. 225.** The form of amino acids present in living organisms is.
 Ans. L-form (B.H.U. Pre P.G. 2002)
- Q. 226.** The pairs is strongly bound with each other.
 Ans. A+T, G+C, A+C (Ph.D. 1999)
- Q. 227.** Bio fertilizer more suited for sugarcane is.
 Ans. Azotobacter (Ph.D. 1998)
- Q. 228.** Lines joining equal rainfall called.
 Ans. Isohyet (J.R.F. 1995)

- Q. 229. Origin of maize country
Ans. South America (B.H.U. Pre P.G. 2002)
- Q. 230. Depth of sowing of soyabean seed.
Ans. 3 cm. (J.R.F. 2003)
- Q. 231. Cropping intensity of India.
Ans. 140% (Ph.D. 2002)
- Q. 232. First rice variety introduced in India.
Ans. (1966) IR -8 (J.R.F. 2001)
- Q. 233. Nicotine content in tobacco is related with.
Ans. Nitrogen (Ph.D. 1999)
- Q. 234. Boro rice is transplanted in.
Ans. Nov.-Dec. (Ph.D. 1998)
- Q. 235. Glyphosate is a herbicide.
Ans. Non selective (J.R.F. 1995)
- Q. 236. Indian mustard is.
Ans. Brassica juncea (J.R.F. 2001)
- Q. 237. Mass flow is affected by.
Ans. Transpiration (Ph.D. 2002)
- Q. 238. Carbon content in organic matter.
Ans. 58% (Ph.D. 1998)
- Q. 239. Desi cotton is known as.
Ans. Gossipium arboreum (J.R.F. 1995)
- Q. 240. Metric suction is measured by.
Ans. Tensiometer (B.H.U. Pre P.G. 2002)
- Q. 241. Nitrogen bio fertilizer for wheat.
Ans. Azotobacter (J.R.F. 1996)
- Q. 242. Brix measures.
Ans. TSS (J.R.F. 1995)
- Q. 243. Verticillate mulch is used in soils.
Ans. Black cotton soils (J.R.F. 2001)

- Q. 244. Design used when fertility gradient is in two direction.
Ans. L.S.D. (Ph.D. 1998)
- Q. 245. Criteria of essentiality was given by.
Ans. Arnon & Stout (B.H.U. Pre P.G. 2002)
- Q. 246. Nucleus was discovered by.
Ans. Robert brown (Ph.D. 1999)
- Q. 247. Segregation occurs during.
Ans. Meiosis only (J.R.F. 1996)
- Q. 248. The longest mitotic phase is.
Ans. Prophase (J.R.F. 1995), (2003), (Ph.D. 2002)
- Q. 249. Tetrad is seen in.
Ans. Pachytene (Ph.D. 1998)
- Q. 250. Chiasmata is seen during.
Ans. Diplotene (J.R.F. 2003)
- Q. 251. Multilines in wheat are produced by.
Ans. Back cross breeding (Ph.D. 2002)
- Q. 252. The selection procedure which provides the maximum improvement over the base population is.
Ans. Pure line selection (Ph.D. 2002)
- Q. 253. Most dangerous disease of potato.
Ans. Late blight of potato (J.R.F. 1995)
- Q. 254. Phyllody disease in plants is caused by.
Ans. Mycoplasma (Ph.D. 1998)
- Q. 255. Father of plant nematology.
Ans. Bastian (J.R.F. 1996)
- Q. 256. Rice production is highest in country.
Ans. China (B.H.U. Pre P.G. 2002)

- Q. 257. Single super phosphate contains sulphur.**
Ans. 12% (J.R.F. 1995)
- Q. 258. Most prominent soil group of India.**
Ans. Alluvial soil (J.R.F. 2003)
- Q. 259. Murate of potash is chemically known as.**
Ans. KCl (J.R.F. 1996)
- Q. 260. Highest contribution to vegetable oil.**
Ans. Ground nut
- Q. 261. Explosive fertilizer is.**
Ans. Ammonium nitrate (B.H.U. Pre P.G. 2001)
- Q. 262. Most mutation tolerant.**
Ans. Polyploids (Ph.D. 1998)
- Q. 263. The person acting as a connecting link between higher department official & farming community in T & V system, known as.**
Ans. Village Extension Worker (Ph.D. 1999)
- Q. 264. The pest which attacks all the parts of the plant is.**
Ans. Termite (J.R.F. 1995)
- Q. 265. White grubs prefer to lay eggs on.**
Ans. Sandy soil (Ph.D. 2002)
- Q. 266. King of pulses .**
Ans. Chickpea. (B.H.U. Pre P.G. 2005)
- Q. 267. Micro nutrient deficient in Indian soils.**
Ans. Zn (J.R.F. 1991) (A.R.S. NET 2007)
- Q. 268. Mantek disease of rice is caused by.**
Ans. Rice root nematode (J.R.F. 1996)
- Q. 269. International pest is.**
Ans. Schistocerca gregaria (Ph.D. 1998)

- Q. 270. The first Fisheries University was.**
Ans. CIFE, Mumbai (Ph.D. 1995)
- Q. 271. Indian Institute of tropical meteorology is situated at**
Ans. Pune (J.R.F. 1996)
- Q. 272. The second Indian recipients of world food prize was. Also credit goes for white Revolution.**
Ans. Dr. Varghese Kurien (Ph.D. 1996) (ARS NET 2007)
- Q. 273. Spike tooth harrow is a.**
Ans. Secondary tillage implement (Ph.D. 1999)
- Q. 274. India ranks rank in fruit production.**
Ans. First (J.R.F. 1996)
- Q. 275. Club root of cauliflower is caused by.**
Ans. Plasmodiophara brassicae (Ph.D. 1995)
- Q. 276. Sheath blight of rice is caused by.**
Ans. Rhizoctonia solani (Ph.D. 1995)
- Q. 277. Father of microbiology.**
Ans. Louis Pasteur (B.H.U. Pre P.G. 2001)
- Q. 278. Bacterium was discovered by.**
Ans. Anton Leewenhock (B.H.U. Pre P.G. 2001)
- Q. 279. The variety of wheat which is resistant to all the three rusts is.**
Ans. Choti lerma (Ph.D. 1995)
- Q. 280. In sugarcane, taking of ratoon crop is advisable only.**
Ans. One time (B.H.U. Pre P.G. 2002)
- Q. 281. Wilt disease is disease.**
Ans. Soil borne (Ph.D. 2002)
- Q. 282. Vector of leaf curl disease in cotton.**
Ans. White flies (Ph.D. 1995)

- Q. 283.** 'Flared square' symptoms seen in cotton due to the.
 Ans. Spotted boll worm (Ph.D. 1998)
- Q. 284.** The no. of electrons required for conversion of NO_3 to NH_4 .
 Ans. 8 (Ph.D. 2002)
- Q. 285.** Conversion of fat to sugar occurs in.
 Ans. Glyoxysomes (Ph.D. 1995)
- Q. 286.** The net requirement for assimilation of CO_2 in C_4 plants is.
 Ans. 5 (Ph.D. 1998)
- Q. 287.** The primary acceptor of electron in PS II is.
 Ans. Pheophytin (J.R.F. 2001)
- Q. 288.** Gneiss is a rock.
 Ans. Metamorphic (Ph.D. 1995)
- Q. 289.** Under the USDA system, silt is classified as having a particle size of.
 Ans. 0.02 to 0.002 mm. (J.R.F. 1997)
- Q. 290.** Hygroscopic water is held at a tension of atmosphere.
 Ans. 31 or more (J.R.F. 1997)
- Q. 291.** Kaolinite is a layer silicate type.
 Ans. 1 : 1 type (Ph.D. 1998)
- Q. 292.** Clays are minerals.
 Ans. Secondary (J.R.F. 1998)
- Q. 293.** C : N ratio of organic matter is.
 Ans. 10 : 1 (Ph.D. 1995)
- Q. 294.** CAN is fertilizer.
 Ans. Neutral (J.R.F. 1998)

- Q. 295.** Most widely used for correcting soil acidity.
 Ans. Lime (J.R.F. 2003)
- Q. 296.** Largest importer of cut flowers in the world.
 Ans. Germany (J.R.F. 1997)
- Q. 297.** Density of water is maximum at °C.
 Ans. 4°C (Ph.D. 1995)
- Q. 298.** Diara cultivation method is followed in.
 Ans. Cucurbits (J.R.F. 1997)
- Q. 299.** The irrigation method which is suitable for saline soils.
 Ans. Flood method (J.R.F. 1997)
- Q. 300.** The role of extension education in India is performed by.
 Ans. State Agricultural University (SAUs) (J.R.F. 1997)
- Q. 301.** Extension is a.
 Ans. Two way flow of message (Ph.D. 1995)
- Q. 302.** Oldest method of selection is.
 Ans. Mass selection (Ph.D. 1998)
- Q. 303.** The limit of the regression coefficient is.
 Ans. 0 to 1 (J.R.F. 1998)
- Q. 304.** Highly salt tolerant crop.
 Ans. Barley (BHU, 2009) (J.R.F. 2001)
- Q. 305.** Formation of male flowers is induced by.
 Ans. GA_3 (J.R.F. 2003)
- Q. 306.** Cytokinin is mostly synthesized in.
 Ans. Root tips (Ph.D. 2002)
- Q. 307.** Recent method of control of bollworms is.
 Ans. Bt. transgenic plants (J.R.F. 2003)
- Q. 308.** Orabanche is a parasite associated with.....
 Ans. Tobacco (Ph.D. 1998)

- Q. 309.** Dr. B.P. Pal is associated with.
Ans. Breeding (J.R.F. 1998)
- Q. 310.** Art of giving shape to shrubs resembling to figure is called as.
Ans. Topiary (B.H.U. Pre P.G. 2002)
- Q. 311.** The dwarf variety of mango is.
Ans. Amrapali (J.R.F. 1997)
- Q. 312.** Mango malformation can be checked by.
Ans. NAA Spray (Ph.D. 1995)
- Q. 313.** Photo-respiration occurs in.
Ans. Chloroplast (J.R.F. 2003)
- Q. 314.** Photosynthesis is an.
Ans. Oxidation-reduction process (J.R.F. 1997)
- Q. 315.** Root promoting hormone is.
Ans. IBA (J.R.F. 1998)
- Q. 316.** Fruit of rose is known as.
Ans. Hips (Ph.D. 2002)
- Q. 317.** What conc. of sugar is used for preservation.
Ans. 60-70% (J.R.F. 2001)
- Q. 318.** Fruit crop which requires the highest no. of irrigations.
Ans. Banana (Ph.D. 1995)
- Q. 319.** Photo system II is absent in.
Ans. C₄ plants (Ph.D. 1998)
- Q. 320.** Conversion of fat into carbohydrate is.
Ans. Glyoxylate cycle (J.R.F. 1998)
- Q. 321.** Peroxisome is a.
Ans. Single membrane organelle (J.R.F. 1997)
- Q. 322.** The main site for the dark reaction of photosynthesis is.
Ans. Stroma (J.R.F. 2001)

- Q. 323.** The F₂ ratio for complementary interaction is.
Ans. 9 : 7 (Ph.D. 1998)
- Q. 324.** The shortest phase of all the Mitosis phases is.
Ans. Anaphase (J.R.F. 1997)
- Q. 325.** Longest phase of all the mitosis phases is.
Ans. Prophase (J.R.F. 2003)
- Q. 326.** The site of protein synthesis is.
Ans. Ribosomes (J.R.F. 1997)
- Q. 327.** Operation flood is related to.
Ans. Dairy development (J.R.F. 1997) (2009)
- Q. 328.** Bunch terracing is done when the slope is more than.
Ans. 15% (J.R.F. 1998)
- Q. 329.** Mass per unit volume is called as.
Ans. Bulk density (J.R.F. 1996)
- Q. 330.** Disk plough are used when the soil is.
Ans. Tough (B.H.U. Pre P.G. 2002)
- Q. 331.** Post harvest losses for cereals account for of total production.
Ans. 10% (Ph.D. 1999)
- Q. 332.** National seed act passed.
Ans. 1966 (J.R.F. 1998)
- Q. 333.** ICAR was initiated as per recommendation of.
Ans. Royal commission on Agriculture 1925 (J.R.F. 1997)
- Q. 334.** Mango variety which is suitable for high density planting is.
Ans. Amrapali (Ph.D. 1998)
- Q. 335.** Malika is a cross of.
Ans. Neelam × Dashari (J.R.F. 2000)

- Q. 336. T & V was first started in.
Ans. Rajasthan (J.R.F. 2001)
- Q. 337. Indian Journal of Agriculture sciences is published by.
Ans. ICAR (J.R.F. 1997)
- Q. 338. The design to be followed for one directional fertility gradient is.
Ans. R.B.D. (J.R.F. 1998)
- Q. 339. The distribution where the *sp.* is equal to the root of mean is.
Ans. Poisson (J.R.F. 2000)
- Q. 340. Maximum contribution of the crop to the production of cereals in the country.
Ans. Rice (J.R.F. 2001)
- Q. 341. Highest sugarcane yield per hectare in the state.
Ans. Tamilnadu (J.R.F. 2000)
- Q. 342. Distribution of mean median mode is a.
Ans. Normal distribution (Ph.D. 1995)
- Q. 343. Nursery area required for seedling of rice for one hectare field is.
Ans. 0.10 ha. (J.R.F. 1998)
- Q. 344. Marble is a.
Ans. Metamorphic rock (Ph.D. 1995)
- Q. 345. Time duration for adsali crop of sugarcane.
Ans. 18 months (J.R.F. 2000)
- Q. 346. Crossing over occurs in.
Ans. Pachytene (J.R.F. 2003)
- Q. 347. First man made cereal is.
Ans. Triticale (J.R.F. 1998) (J.R.F. 2000)

- Q. 348. Triticale is a crossing of.
Ans. Wheat × Rye (Ph.D. 1994)
- Q. 349. Intervainal chlorosis occurs due to.
Ans. Fe deficiency (J.R.F. 1996)
- Q. 350. Saline tolerant fruit crop is.
Ans. Date palm (Ph.D. 1995)
- Q. 351. Optimum pH for rice.
Ans. 4-6 pH (J.R.F. 1998)
- Q. 352. Dead heart & white ear associated with the crop.
Ans. Rice (J.R.F. 2000)
- Q. 353. Formula of Urea.
Ans. CO (NH₂)₂ (J.R.F. 1996)
- Q. 354. M.O.P. contains K₂O.
Ans. 58-60% (Ph.D. 1994)
- Q. 355. Fruit ripening hormone is.
Ans. Ethylene (J.R.F. 2001)
- Q. 356. Water use efficiency higher in plants.
Ans. CAM plants (J.R.F. 2003)
- Q. 357. Ooze test is done for detecting.
Ans. Bacteria (J.R.F. 1998)
- Q. 358. Maximum arable land in country.
Ans. Australia (J.R.F. 1996)
- Q. 359. Malathion is a.
Ans. Systemic organo phosphate (Ph.D. 1994)
- Q. 360. Family of sugarcane.
Ans. Graminae (J.R.F. 2000)
- Q. 361. Most widely grown rabi pulse crop.
Ans. Bengal Gram (J.R.F. 2001)
- Q. 362. Unit of rural society.
Ans. Village (Ph.D. 1994)

- Q. 363. Fruit type of guava.**
Ans. Berry (Ph.D. 1994)
- Q. 364. The term genetics was coined by.**
Ans. Bateson (J.R.F. 2000)
- Q. 365. Sodic soils are reclaimed by.**
Ans. Gypsum (J.R.F. 1998)
- Q. 366. I.I.S.R. is situated at.**
Ans. Lucknow (Ph.D. 1994)
- Q. 367. IBPGR is situated at.**
Ans. Italy, Rome (J.R.F. 2000)
- Q. 368. Proportion of sand, silt, clay known as.**
Ans. Soil texture (Ph.D. 1995)
- Q. 369. Cheapest N containing fertilizer is.**
Ans. Urea (Ph.D. 1994)
- Q. 370. Total Land capability classes are.**
Ans. 8 (Ph.D. 1994)
- Q. 371. Bacteria change nitrite to nitrate are.**
Ans. Nitrobacter (B.H.U. Pre P.G. 2002)
- Q. 372. Akiochi disease is due to.**
Ans. Sulphur toxicity (J.R.F. 2000)
- Q. 373. First product of Urea hydrolysis.**
Ans. Ammonium carbamate (J.R.F. 1998)
- Q. 374. Azolla is a.**
Ans. Blue green algae (Ph.D. 1994)
- Q. 375. Functional nutrients given by.**
Ans. Nicholas (J.R.F. 2000)
- Q. 376. State leading in wheat production is.**
Ans. Uttar Pradesh (Ph.D. 2002)
- Q. 377. NABARD was set up on the recommendation of.**
Ans. Siva Raman Committee, Narasimhan Committee

- Q. 378. White rust of crucifers is caused by.**
Ans. Albugo candida (J.R.F. 2000)
- Q. 379. The hard fruits of citrus is due to the.**
Ans. B deficiency (Ph.D. 1999)
- Q. 380. Which is the antidote of insect poisoning.**
Ans. Atropin (B.H.U. Pre P.G. 2001)
- Q. 381. Tetra sonic is.**
Ans. $2n + 2$ (J.R.F. 2003)
- Q. 382. Precursor of IAA is.**
Ans. Tryptophan (Ph.D. 1999)
- Q. 383. Fruit of okra is.**
Ans. Capsule (J.R.F. 2000)
- Q. 384. Vitamin, containing cobalt as a constituent is.**
Ans. Vit. B₁₂ (J.R.F. 2000)
- Q. 385. Free living nitrogen fixing organism is.**
Ans. Azotobacter (Ph.D. 1994)
- Q. 386. Dwarfing gene in rice is.**
Ans. Dee gee woo gene (Ph.D. 1994)
- Q. 387. Centre of origin of wheat is.**
Ans. Mexico (J.R.F. 1996)
- Q. 388. Food of God**
Ans. Cocoa (Ph.D. 2000)
- Q. 389. Total National Bureau are.**
Ans. 6
- Q. 390. Lab to land programme started in the year.**
Ans. 1979 (J.R.F. 2000)
- Q. 391. Disease which was discovered in Haryana.**
Ans. Karnal bunt (J.R.F. 1993)

- Q. 392.** Chromosomal theory of inheritance was proposed by.
 Ans. Sutton & Boveri (J.R.F. 2003)
- Q. 393.** Ufra disease in Rice is caused by.
 Ans. (Nematode) Ditylenchus sp. (Ph.D. 1994)
- Q. 394.** The fruit of mustard is known as.
 Ans. Siliqua (J.R.F. 1998. 2000)
- Q. 395.** N content in ammonium sulphate is.
 Ans. 21% (J.R.F. 2003)
- Q. 396.** Herbicides are not used in the dust formulation because of.
 Ans. Drift hazard (Ph.D. 1994)
- Q. 397.** The fungicide which is used for smut.
 Ans. Vitavax (Ph.D. 1994)
- Q. 398.** First stable product formed in C_3 plants is.
 Ans. PGA (Ph.D. 1995)
- Q. 399.** The green house gas that's released from paddy field is.
 Ans. CH_4 (Methane) (J.R.F. 1998)
- Q. 400.** B.P. Pal is a variety of.
 Ans. Rose (J.R.F. 2000)
- Q. 401.** Over the years the percent contribution of agriculture to G.D.P. is.
 Ans. Decreasing (J.R.F. 2003)
- Q. 402.** I.A.D.P. programme started in the year.
 Ans. 1960 (Ph.D. 2002)
- Q. 403.** Person associated with Gurgoan pilot project is.
 Ans. P.L. Brayne (J.R.F. 1993)
- Q. 404.** Net irrigated area of India.
 Ans. 57m.ha. (Ph.D. 1994)

- Q. 405.** What is the price called which is fixed by government.
 Ans. Minimum Support Price (J.R.F. 2003)
- Q. 406.** Power house of cell is.
 Ans. Mitochondria (B.H.U. Pre P.G. 2002)
- Q. 407.** The percent land resource of India in world is.
 Ans. 2.4% (J.R.F. 1993)
- Q. 408.** Head quarters of W.T.O. is located at.
 Ans. Geneva (J.R.F. 2000)
- Q. 409.** The highest award presented to an agricultural scientist in the country is.
 Ans. Rafi Ahmad Kidwai Award (J.R.F. 1993)
- Q. 410.** The growth rate projected in the 10th five year plan is.
 Ans. 8.0%
- Q. 411.** I. A. R. I. is a
 Ans. Deemed University (J.R.F. 2001)
- Q. 412.** Highest C.E.C. found in.
 Ans. Vermiculite (Ph.D. 1995)
- Q. 413.** E.S.P. of normal soils is.
 Ans. Less than 15% (J.R.F. 1998)
- Q. 414.** Sugar turn out from S.cane in India is.
 Ans. 8-10% (J.R.F. 1993)
- Q. 415.** Permanent wilting point is observed at.
 Ans. -15 bar (J.R.F. 2000)
- Q. 416.** Mango is mostly propagated through.
 Ans. Veneer grafting (Ph.D. 1994)
- Q. 417.** Micro organism associated with the symbiotic N_2 fixation in non legumes is.
 Ans. Azolla (Ph.D. 1994)

- Q. 418. Emer wheat is.**
 Ans. *Triticum dicoccum* (Ph.D. 1995)
- Q. 419. Net capital ratio is.**
 Ans. $\frac{\text{Total assets}}{\text{Total liabilities}}$ (Ph.D. 1999)
- Q. 420. Catken is a inflorescence of.**
 Ans. Cauliflower (J.R.F. 1998)
- Q. 421. Black heart of potato is due to.**
 Ans. Poorly drained soil (Ph.D. 2002)
- Q. 422. The Arka series of varieties are released from.**
 Ans. IIHR Bangalore (J.R.F. 2000)
- Q. 423. Major agricultural import in India is.**
 Ans. Edible oils (J.R.F. 1993)
- Q. 424. Which programme also known as package programme.**
 Ans. IADP (B.H.U. Pre P.G. 2002)
- Q. 425. Whip tail of cauliflower is due to the deficiency of.**
 Ans. Mo (J.R.F. 1993, 2009)
- Q. 426. Gross cropped area in India is.**
 Ans. 193 M.ha. (J.R.F. 2000)
- Q. 427. Yellow rust in wheat is caused by.**
 Ans. *Puccinia striiformis* (J.R.F. 1993)
- Q. 428. Seedless mango variety is.**
 Ans. Sindhu (J.R.F. 1993)
- Q. 429. Pink revolution refers to.**
 Ans. Onion (Ph.D. 2001)
- Q. 430. Correlation coefficient ranges between.**
 Ans. -1 to +1 (J.R.F. 1998, 2000)

- Q. 431. Pusa snow ball is a variety of.**
 Ans. Cauliflower (Ph.D. 1995)
- Q. 432. CRIDA is located at.**
 Ans. Hyderabad (J.R.F. 1998)
- Q. 433. India's share in the fruit production in the world is.**
 Ans. 10% (J.R.F. 2000)
- Q. 434. Fertilizer's which are completely imported.**
 Ans. Potassic (J.R.F. 1993)
- Q. 435. The contribution of Agriculture to GDP of India is about**
 Ans. 17.1% (Economic survey 2008-09)
- Q. 436. Last D.G. of ICAR.**
 Ans. Mangala Rai (B.H.U. Pre P.G. 2002)
- Q. 437. Moisture content for safe storage of cereals is.**
 Ans. 12-14% (Ph.D. 2001)
- Q. 438. Lunishree is a variety of.**
 Ans. Super Rice
- Q. 439. Highest cotton production in India.**
 Ans. Maharashtra (J.R.F. 1993)
- Q. 440. Supporting price of wheat in 2002.**
 Ans. Rs.610 (J.R.F. 2003)
- Q. 441. Minimum support price is formulated by.**
 Ans. CACP (Ph.D. 2001)
- Q. 442. Central Agricultural University is located at.**
 Ans. Imphal (J.R.F. 1993)
- Q. 443. Constituent of wheat affecting its baking quality is.**
 Ans. Glutin (Ph.D. 2001)
- Q. 444. I.G.F.R.I. is situated at.**
 Ans. Jhansi (U.P.) (J.R.F. 1993)

- Q. 445. CRI stage occurs in wheat in.
Ans. 21 days (J.R.F. 1998)
- Q. 446. Bulk density is high in.
Ans. Sandy soil (Ph.D. 1999)
- Q. 447. Suicidal bags of cell are.
Ans. Lysosomes (Ph.D. 1995)
- Q. 448. The fertilizer also called Nitro chalk.
Ans. CAN (B.H.U. Pre P.G. 2002)
- Q. 449. Regression coefficient varies between.
Ans. $-\infty$ to $+\infty$ (Ph.D. 2001) (J.R.F. 1998)
- Q. 450. Soil transported through wind is.
Ans. Aeolian soil (J.R.F. 1993)
- Q. 451. Formation of mRNA from DNA is called.
Ans. Transcription (J.R.F. 1993)
- Q. 452. The ion generally dominant in soil solution is.
Ans. Ca^{2+} (Ph.D. 2001)
- Q. 453. Fixation in soil is a problem in case of.
Ans. Phosphatic fertilizers (Ph.D. 2002)
- Q. 454. Luxury consumption is generally associated with.
Ans. Potassium (Ph.D. 2001)
- Q. 455. The journal of Indian farming is published by.
Ans. ICAR (Ph.D. 1999)
- Q. 456. Pride fruit of India is.
Ans. Mango (J.R.F. 1998)
- Q. 457. Solar constant is.
Ans. $1.94 \text{ cal/cm}^2/\text{sec}$ (JRF 2006)
- Q. 458. C.V. of rainfall is more in.
Ans. Thar desert (Ph.D. 1995)

- Q. 459. Striga is type parasite.
Ans. Semi root. (B.H.U. Pre P.G. 2001)
- Q. 460. Lady bird beetle is a.
Ans. Predator (Ph.D. 2001)
- Q. 461. Monophagus pest is.
Ans. Yellow stem borer (B.H.U. Pre P.G. 2001)
- Q. 462. Maximum production of potato in.
Ans. Uttar Pradesh (B.H.U. Pre P.G. 2001)
- Q. 463. CIPHET is situated at.
Ans. Ludhiana (Ph.D. 1995)
- Q. 464. First project launched in India.
Ans. Etawah (Ph.D. 2001)
- Q. 465. Maximum oil seed producer crop in India.
Ans. Ground nut (J.R.F. 1998)
- Q. 466. Maximum nutrient uptake by plants.
Ans. K^+ (Ph.D. 2001)
- Q. 467. Nutrient available in combined form.
Ans. Nitrogen (B.H.U. Pre P.G. 2002)
- Q. 468. Sulphur is available in which form
Ans. SO_4^{-2} (J.R.F. 1993)
- Q. 469. Sugarcane sets required per ha.
Ans. 35,000 - 40,000 (Ph.D. 2001)
- Q. 470. Most efficient irrigation system.
Ans. Drip irrigation (B.H.U. Pre P.G. 2001) (AAO, 2009)
- Q. 471. How many deemed Universities under ICAR
Ans. 4 (J.R.F. 1993)
- Q. 472. Insects which attacks rice at night.
Ans. Army worm (Ph.D. 2001)
- Q. 473. Formula of gypsum.
Ans. $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ (J.R.F. 1993)

- Q. 474. Maximum productivity among cereals in world.**
Ans. Maize (J.R.F. 1998)
- Q. 475. Queen of cereals known as.**
Ans. Maize (J.R.F. 1993)
- Q. 476. Gold of America known as.**
Ans. Soyabean
- Q. 477. Back bone of America is the crop.**
Ans. Maize (B.H.U. Pre P.G. 2002)
- Q. 478. Hulling % in rice is.**
Ans. 65% (Ph.D. 1999)
- Q. 479. Weight of cotton bale is.**
Ans. 170 kg. (J.R.F. 1998)
- Q. 480. Which is not a measure of central tendency.**
Ans. Range (J.R.F. 1999)
- Q. 481. Pungency in onion is due to presence of.**
Ans. Sulphur compound (J.R.F. 1992)
- Q. 482. CEC of humus is.**
Ans. 200–300 (Ph.D. 1999)
- Q. 483. Movement from higher concentration to lower concentration known as.**
Ans. Diffusion (J.R.F. 1999)
- Q. 484. 'V' shape pattern of yellowing shows.**
Ans. N deficiency (Ph.D. 2001)
- Q. 485. Fiber of cotton contains.**
Ans. Cellulose (J.R.F. 1999)
- Q. 486. Available water lies between.**
Ans. 33 to 15 bar (J.R.F. 1992)
- Q. 487. Growing subsidiary crop between widely rowed space of main crop is called.**
Ans. Intercropping (J.R.F. 1992)

- Q. 488. Least degree of freedom in ANOVA is.**
Ans. 12 (J.R.F. 1999)
- Q. 489. Sugar cane is a**
Ans. Quantative short day plant (J.R.F. 1992)
- Q. 490. Isotopes have same no. of.**
Ans. Proton (J.R.F. 1999)
- Q. 491. N₂ deficiency occurs in plants on.**
Ans. Lower leaves (J.R.F. 1992)
- Q. 492. Highest K₂O containing fertilizer.**
Ans. KCl (60%) (B.H.U. Pre P.G. 2002)
- Q. 493. Boron is harmful for plants having more than.**
Ans. 3 PPM conc. (Ph.D. 2001)
- Q. 494. Which is not a measure of dispersion.**
Ans. Coefficient of variation (J.R.F. 1992)
- Q. 495. Irish famine (1845) was caused by.**
Ans. Phytophthora infestans (J.R.F. 1992)
- Q. 496. Production of ATP in the presence of light is known as.**
Ans. Photo-phosphorylation (J.R.F. 1999)
- Q. 497. For seed purpose carrot is grown as.**
Ans. Binneal (Ph.D. 2002)
- Q. 498. Soil moisture is measured by.**
Ans. Tensiometer (J.R.F. 1999)
- Q. 499. Bacteria which convert NH₄⁺ to NO₂⁻**
Ans. Nitrosomonas (J.R.F. 1992)
- Q. 500. Physical condition of soil known as.**
Ans. Soil tilth (J.R.F. 1992)
- Q. 501. Infra red thermometer used for.**
Ans. Crop canopy temperature (Ph.D. 2001)

- Q. 502.** Most serious disease in sugarcane.
Ans. Red rot (J.R.F. 1999)
- Q. 503.** Ribosome found in mitochondria
Ans. 70s type (Ph.D. 1999)
- Q. 504.** Black soils found in.
Ans. Maharashtra (J.R.F. 1992)
- Q. 505.** World's staple food is.
Ans. Wheat/Rice (Ph.D. 1999)
- Q. 506.** 3M deep, more than 18M. wide gully is known as.
Ans. Small gully (J.R.F. 1992)
- Q. 507.** In which fertilizer N & P present in highest amount.
Ans. D.A.P. (18%, 46%)
- Q. 508.** Leading state in acreage of rice.
Ans. West Bengal (J.R.F. 1999)
- Q. 509.** Which crop having highest percentage of irrigation.
Ans. Wheat (J.R.F. 1991)
- Q. 510.** Sugarcane sowing in trench method to.
Ans. Prevent lodging (Ph.D. 2001)
- Q. 511.** Dough stage means.
Ans. Milking to just maturing (J.R.F. 2003)
- Q. 512.** C : N ratio of most arable soils.
Ans. 10 : 1 (J.R.F. 1999)
- Q. 513.** Noble cane is.
Ans. Saccharum officinerum (Ph.D. 1999)
- Q. 514.** Re-discovery of Mendel laws by.
Ans. Devries, Correns, Trashe Mark (J.R.F. 1992)
- Q. 515.** Pattern used in dry land.
Ans. Broadcasting (J.R.F. 1992)

- Q. 516.** Parboiling in rice conserves.
Ans. Vitamin B (Ph.D. 2001)
- Q. 517.** Maize is a.
Ans. C₄ plant (J.R.F. 2001)
- Q. 518.** In 1943 Bengal famine was due to.
Ans. Blast of rice (Pyricularia oryzae) (J.R.F. 1992)
- Q. 519.** Maximum total porosity found in.
Ans. Clay soils (J.R.F. 1999)
- Q. 520.** Most frost effected crop.
Ans. Gram (J.R.F. 1992)
- Q. 521.** H.D. - 2329 is a variety of.
Ans. Wheat (Ph.D. 2001)
- Q. 522.** Drip irrigation introduced in India from.
Ans. Israel (B.H.U. Pre P.G. 2002)
- Q. 523.** N% in CAN is.
Ans. 25% (J.R.F. 1999)
- Q. 524.** Highest amount of rainfall received in India by.
Ans. South West Monsoon (J.R.F. 1992)
- Q. 525.** The river basins have more utilizable flow in.
Ans. Ganga (B.H.U. Pre P.G. 2001)
- Q. 526.** First Agricultural chemist of Imperial Agricultural Research station was.
Ans. J. W. Leather (Ph.D. 2001)
- Q. 527.** Pseudo cereal is.
Ans. Buck Wheat (J.R.F. 1999)
- Q. 528.** King of fruits.
Ans. Mango (J.R.F. 1992)
- Q. 529.** Queen of spices.
Ans. Cardamom (J.R.F. 1999)

- Q. 530. How water rises in plant.**
 Ans. By Transpiration Pull (J.R.F. 1991)
- Q. 531. The first fertilizer produced in India was.**
 Ans. S.S.P. (Ph.D. 2001)
- Q. 532. Oil content in soyabean.**
 Ans. 20% (J.R.F. 1999)
- Q. 533. Hand book of Agriculture published by.**
 Ans. ICAR (B.H.U. Pre P.G. 2001)
- Q. 534. Growth of plants towards light is known as.**
 Ans. Photoperiodism (J.R.F. 2003)
- Q. 535. Agmark is.**
 Ans. Quality of food product (J.R.F. 1991)
- Q. 536. Diameter of clay particles.**
 Ans. $<.002$ (Ph.D. 2001)
- Q. 537. Available form of N in soil.**
 Ans. NH_4^- & NO_3^-3 (Ph.D. 1999)
- Q. 538. E.S.P. of alkali soils.**
 Ans. $>15\%$ (J.R.F. 1999)
- Q. 539. The normal ratio of rice/paddy is.**
 Ans. $2/3$ (B.H.U. Pre P.G. 2001)
- Q. 540. Crop for attracting insects.**
 Ans. Trap crop (J.R.F. 1999)
- Q. 541. Wind velocity can be measured by.**
 Ans. Anemometer (J.R.F. 1999)
- Q. 542. Deflocculation of soil particles occurs by.**
 Ans. Na (J.R.F. 1992)
- Q. 543. Planting before harvest of main crop is known as.**
 Ans. Relay cropping (J.R.F. 1992)

- Q. 544. Which is not a green house gas.**
 Ans. O_2 (J.R.F. 1999)
- Q. 545. Urea is maximum marketed as.**
 Ans. Prills (J.R.F. 2003)
- Q. 546. Maximum metabolic activity of plant is at.**
 Ans. $22-30^\circ\text{C}$ (Ph.D. 2001)
- Q. 547. ICMR recommendation for pulse consumption /day/capita.**
 Ans. 85 gram/day
- Q. 548. 1 gm. glucose has.**
 Ans. 0.45 gram fat (Ph.D. 2001)
- Q. 549. Harvest Index in wheat is.**
 Ans. 0.35-0.45 (Ph.D. 1999)
- Q. 550. Leaf curl of tomato is due to.**
 Ans. Virus (J.R.F. 1991)
- Q. 551. The crop which prefer ammonical form of N.**
 Ans. Rice (J.R.F. 1999)
- Q. 552. PUFA content is highest in.**
 Ans. Sunflower (J.R.F. 1992)
- Q. 553. Interospecific hybrid are more common in.**
 Ans. Cotton (B.H.U. Pre P.G. 2001)
- Q. 554. Shedding of plant parts is due to.**
 Ans. ABA (Ph.D. 2001)
- Q. 555. Soil is clay when clay separates are minimum of.**
 Ans. 30% (J.R.F. 1992)
- Q. 556. Maximum N loss in rice in form of.**
 Ans. Denitrification (J.R.F. 1999)
- Q. 557. Head of planning commission is.**
 Ans. Prime Minister (Ph.D. 1994)

- Q. 558.** Climate for arhar is.
Ans. Warm tropical
- Q. 559.** High yielding variety of wheat produced by in world.
Ans. N. Baurlog (Ph.D. 1994)
- Q. 560.** Maximum P available at pH.
Ans. 6.5 -7.0 pH (J.R.F. 2003)
- Q. 561.** Chemical used for delinting of cotton.
Ans. H_2SO_4 (Ph.D. 1994)
- Q. 562.** Highest nutrient content in which fertilizer.
Ans. S.S.P. (Ph.D. 1999)
- Q. 563.** Sowing time of cotton in north India.
Ans. 15 May (Ph.D. 1994)
- Q. 564.** Soil erosion in India is.
Ans. 16 ton/ha/year (B.H.U. Pre P.G. 2001)
- Q. 565.** No. of eggs/sec. laid by termite.
Ans. 60 (Ph.D. 1994)
- Q. 566.** Which is a stable element.
Ans. Zr (Ph.D. 1999)
- Q. 567.** The Book "Nature & Properties of Soil" is written by.
Ans. N.C. Brady (Ph.D. 1994)
- Q. 568.** Poor man's fruit
Ans. Ber (Ph.D. 1994)
- Q. 569.** Rothemsted Agricultural Research station was founded by.
Ans. Larves & Gilbert (Ph.D. 1999)
- Q. 570.** Protein content in wheat.
Ans. 12-14% (Ph.D. 1994)

- Q. 571.** Curing is related to the crop.
Ans. Tobacco (J.R.F. 1999)
- Q. 572.** Which micro organism is responsible for maximum nutrient cycling in the soil.
Ans. Bacteria (J.R.F. 2003)
- Q. 573.** The extension programme linked from planned credit for farmers.
Ans. IRDP (Ph.D. 1999)
- Q. 574.** Ratooning is practiced in crop.
Ans. Sugarcane (Ph.D. 1994)
- Q. 575.** Molybdenum is required by plants because it is a cofactor for.
Ans. Nitrate reductase (Ph.D. 1994)
- Q. 576.** The basic unit of development under the Integrated Rural Development Programme is a.
Ans. Family (Ph.D. 1994)
- Q. 577.** Botanical name of green gram is.
Ans. *Vigna radiata* (Ph.D. 1994)
- Q. 578.** Irrigation method best for undulating topography.
Ans. Sprinkler irrigation (Ph.D. 1994)
- Q. 579.** Present farming system of India has become.
Ans. Market Oriented (J.R.F. 2003)
- Q. 580.** The chemical widely used to treat seed of potato to break its dormancy.
Ans. Thio urea (J.R.F. 2003)
- Q. 581.** Wheat is a origin of.
Ans. Mediterranean (Ph.D. 1994)
- Q. 581.** Azotobacter fixes atmospheric nitrogen.
Ans. Non symbiotically (Ph.D. 1994)

- Q. 582. Rock phosphate use in.**
 Ans. Acidic soil (Ph.D. 1999)
- Q. 583. Cycocel is a.**
 Ans. Growth retardant (J.R.F. 1999)
- Q. 584. Wheat is a.**
 Ans. C₃ plant (J.R.F. 2003, 2006)
- Q. 585. S.A.R. of alkali soils is.**
 Ans. >13 (Ph.D. 1994)
- Q. 586. Most of the plant obtain nitrogen from the soil in the form of.**
 Ans. Nitrate (Ph.D. 1994)
- Q. 587. Total agro climatic zones in India are.**
 Ans. 15 (J.R.F. 1999)
- Q. 588. Foundation seed is produced by.**
 Ans. Breeder seed (Ph.D. 1994)
- Q. 589. Pulse crop doesn't fix N from atmosphere.**
 Ans. Rajma (Kidney Beans) (Ph.D. 1994)
- Q. 590. If only three irrigations are available indicate critical stages of wheat when there will be applied.**
 Ans. CRI, tillering, doughing stage
 (B.H.U. Pre P.G. 2001)
- Q. 591. Potato tuber is a modified form of.**
 Ans. Stem (B.H.U. Pre P.G. 2001)
- Q. 592. The most efficient use of phosphorus is achieved by.**
 Ans. Basal placement at the time of sowing.
- Q. 593 Goodness of fit is used for distribution of.**
 Ans. Chi-square test (Ph.D. 1999)

- Q. 594. Growing plants of different heights in the same field at the same time is known as.**
 Ans. Multi storied cropping (B.H.U. Pre P.G. 2001)
- Q. 595. Water use efficiency is the highest in case of.**
 Ans. Drip irrigation (J.R.F. 2003) (AAO 2009)
- Q. 596. Type of soil water which is most useful for plants.**
 Ans. Capillary water (J.R.F. 1991)
- Q. 597. Scorching of burning on margins of bottom leaves manifests the deficiency of.**
 Ans. Potassium (Ph.D. 1999)
- Q. 598. Plants takes carbon from.**
 Ans. Air (J.R.F. 1991)
- Q. 599. Concept of plant ideotype was first propounded by.**
 Ans. C.M. Donald (J.R.F. 1991)
- Q. 600. The nutrient plays important role in controlling the rate of transpiration.**
 Ans. Potassium (J.R.F. 1991)
- Q. 601. Highest contribution in G.D.P.**
 Ans. Milk (B.H.U. Pre P.G. 2001)
- Q. 602. IVLP is. (Started in the year 1995)**
 Ans. Institution Village Linkage Programme (2009)
- Q. 603. Very few poor (below poverty line) people is in.**
 Ans. Punjab (J.R.F. 1991)
- Q. 604. Micro nutrient deficient in Indian soils.**
 Ans. Zn (J.R.F. 1991) (ARS-NET, 2007)
- Q. 605. In waterlogged area which gas is found abundantly?**
 Ans. CH₄ (J.R.F. 1999)
- Q. 606. What means photo-respiration**
 Ans. Production of ATP (J.R.F. 1999)

- Q. 607. Scientific name of berseem is**
 Ans. *Trifolium alexandrium* (J.R.F. 1999)
- Q. 608. The insect "Boll Worm" commonly found on**
 Ans. Cotton
- Q. 609. Most destructive disease of sugarcane is**
 Ans. Red rot of sugarcane (J.R.F. 2005)
- Q. 610. Global warming is caused due to :**
 Ans. Greenhouse effect (CO_2 , CFCs and CH_4) (J.R.F. 2005)
- Q. 611. Primary consumers are**
 Ans. Zooplankatons
- Q. 612. The edible part of sweet potato (*Ipomoea batata*) is**
 Ans. Adventitious root
- Q. 613. Potatoes are borne on**
 Ans. Stolons
- Q. 614. An example of albuminous seed showing hypogeal germination is**
 Ans. Maize
- Q. 615. The part that develops into seed is**
 Ans. Ovule
- Q. 616. Seeds with tigers claw like structures are found in**
 Ans. *Martynia*
- Q. 617. Study on seasonal flowering in shrubs and trees is known as**
 Ans. Floriculture
- Q. 618. Fruit Research Institute in India is located in**
 Ans. Sabour, Bhagalpur (Bihar)

- Q. 619. Die back of shoots occur due to deficiency of**
 Ans. Copper
- Q. 620. Grey spots on leaves occur due to deficiency of**
 Ans. Manganese
- Q. 621. Yellowing of tea leaves occur due to the deficiency of**
 Ans. Sulphur
- Q. 622. Indian soil is mainly deficient of**
 Ans. Nitrogen
- Q. 623. Which fertiliser is supplied to the fields poor in phosphorus ?**
 Ans. Bone meal
- Q. 624. An element not essential for plant growth is**
 Ans. Iodine
- Q. 625. The oil which is extracted from the endosperm**
 Ans. Coconut oil
- Q. 626. The fibre yielding plant is**
 Ans. *Crotalaria juncea*
- Q. 627. To get food containing mainly starch we grow**
 Ans. Rice and wheat
- Q. 628. The most important cereal of temperate region**
 Ans. Wheat
- Q. 629. Saffron is produced from**
 Ans. Styles and stigma of *Crocus* plant
- Q. 630. Sun flower is principally cultivated for its**
 Ans. Oil
- Q. 631. Long fibres of cotton seed are known as :**
 Ans. Lint
- Q. 632. Part of the plant contains lint and fuzz**
 Ans. Hemp

- Q. 633. The part of coconut produces coir
Ans. Mesocarp
- Q. 634. The plant product used to prepare a milk like preparation
Ans. Soyabean
- Q. 635. An example of CAM plant is
Ans. Pineapple (NET ARS. 1999)
- Q. 636. Quantity of water required to produce one kg of dry matter is
Ans. Consumptive use (NET ARS. 1999)
- Q. 637. Average milling recovery of the commonly grown rice cultivars is
Ans. 60 % (NET ARS. 1999)
- Q. 638. A cultivar developed by combining selected cross pollinated lines is
Ans. Hybrid (NET ARS. 1999)
- Q. 639. The NP fertilizer containing the highest amount of P_2O_5 is
Ans. Ammonium polyphosphate (NET ARS. 1999)
- Q. 340. Nutrient mobility concept was propounded by
Ans. Bray (NET ARS. 1999)
- Q. 341. Water requirement of irrigated wetland rice is about
Ans. 1500 mm (NET ARS. 1999)
- Q. 642. Measurement of sunlight intensity is expressed in
Ans. Lux units (NET ARS. 1999)
- Q.643. True or False
(i) Type 1 error is the rejection of hypothesis when it is actually true.

- (ii) Quantity of water absorbed by a crop for its metabolic use is called its consumptive use.
- (iii) Commercial muriate of potash contains 48.5 K_2O .
- (iv) Fraction of light that is absorbed by a crop canopy is absorptivity coefficient.
- (v) Movement of water molecules/nutrient ions from regions of high concentration to low concentration is known as diffusion.
- Ans. (i) True,
(ii) False,
(iii) False,
(iv) True,
(v) True,
- Q. 644 Fill in the blanks
- (i) Phanerogamic parasite with chlorophyll but no roots _____.
- (ii) A disease caused by *Trichodorus* _____.
- (iii) A disease caused by *Anguina* _____.
- (iv) A disease caused by *Xiphinema* _____.
- (v) A disease caused by *Rodopholus* _____.
- (vi) A fungus used for biological control of plant diseases _____.
- (vii) A disease caused by *Pratylenchus* _____.
- (viii) Karnal bunt was first reported by _____.
- (ix) The first report of plant parasitic nematode was by _____.
- (x) The virus particles were seen for the first time with the electron microscope by _____ and his colleagues.

- Ans. (i) *Loranthus* spp.
 (ii) Stubby roots
 (iii) Wheat Ear cockle disease
 (iv) Girdling of roots
 (v) Tunnel form of banana
 (vi) *Streptomyces*
 (vii) M. Mitra, 1931
 (viii) Nedham, 1743
 (ix) Kanche,
 (x) Stanely (1935).

Q. 645. Define Heritability and describe different methods to estimate heritability

Ans. Heritability is the ratio of genotypic variance to the phenotypic variance or total variance, methods to estimate are :

- 1) From simple trials
- 2) From generation mean analysis
- 3) Diallel analysis. (ARS 2003)

Q. 646. Net gain of ATD during glycolysis is
 Ans. 2 (JRF 2005)

Q. 647. Plants capable of growing in rock crevices are called
 Ans. Lithophytes (JRF 2005)

Q. 648. Maize leaf develop red and purple colour due to the deficiency of
 Ans. Phosphorous (JRF 2005)

Q. 649. Oleoresin is an important product of
 Ans. Chilli (JRF 2007)

Q. 650. 't' test is applicable when number of treatments are
 Ans. 2 (JRF 2005)

- Q. 651. Protoplasm constituted of the element**
 Ans. Calcium (JRF 2006)
- Q. 652. Kesar (saffron) belong to the family of**
 Ans. Iridaceae
- Q. 653. Dioecious are**
 Ans. Plants with male and female flowers (JRF 2006)
- Q. 654. End product of glycolysis is**
 Ans. Pyruvate (JRF 2005)
- Q. 655. Shelford introduced the**
 Ans. Law of tolerance (JRF 2005)
- Q. 656. Full form of IPR is**
 Ans. Intellectual Property Right (ARS, NET 2007)
- Q. 657. Beaufort Scale is used to measure**
 Ans. Wind Pressure/Strength (ARS, NET 2007)
- Q. 658. Crop known as camel crop is**
 Ans. Sorghum (ARS, NET 2007)
- Q. 659. National Biodiversity Board is situated at**
 Ans. New Delhi (ARS, NET 2007)
- Q. 660. Citrus canker is caused due to**
 Ans. Bacteria (Ph.D Gen. Agri. 2007)
- Q. 661. Purline theory was given by**
 Ans. W.L. Johannsen (Ph.D., 2007)
- Q. 662. Carbon dating technique is used to determine age of**
 Ans. Fossils (ARS, NET 2007)
- Q. 663. Age of plants is determined by**
 Ans. Annual rings (ARS, NET 2007)
- Q. 664. Pashmina used in winter clothes is obtained from the animal**
 Ans. Goats (ARS, NET 2007)

- Q. 665. Natural genetic engineer is**
 Ans. *Agrobacterium tumefaciens* (Ph.D. 2007)
- Q. 666. Positively charged Amino acid**
 Ans. Lysine (Ph. D. 2007)
- Q. 667. Blue revolution is related to**
 Ans. Aquaculture (ARS, NET 2007)
- Q. 668. Virus which have DNA as a genetic material**
 Ans. Chromatin (ARS, NET 2007)
- Q. 669. Formula for Leaf Area Index is**
 Ans. Leaf area/ground area
- Q. 670. Leaf area index is proposed by**
 Ans. RADFORD (1967)
- Q. 671. What is Eugenics**
 Ans. Science of selective breeding to achieve a pre-determined set of genetic characteristics.
- Q. 672. What is Fermentation?**
 Ans. An aerobic break down by micro-organism of complex organic substances, especially carbohydrate to CO₂ and alcohol.
- Q. 673. What is fertilization?**
 Ans. Fusion of two gametes and of their respective nuclei to create diploid or polyploid zygote.
- Q. 674. EST (Expressed Sequence Tags)**
 Ans. Short cDNA sequences used to link physical maps of genomes
- Q. 675. Anisogamy**
 Ans. Sexual reproduction in which female gamete is large and immobile and the male gamete is small and motile.
- Q. 676. Endangered species of Indian Medicinal Plant is**
 Ans. *Podophyllum*

- Q. 677. Third generation Pesticides are**
 Ans. Juvenile hormone analogues
- Q. 678. Division of one cell cleavage into two daughter cell or a chromosome into two arms.**
 Ans. Fission
- Q. 679. A plant that can withstand and grow under severe adverse conditions.**
 Ans. Hardy
- Q. 680. Term virus was coined by**
 Ans. Beijerinck
- Q. 681. Bordeaux mixture (fungicide) was developed by**
 - Ans. Millardet (Ph.D. 2009)
- Q. 682. In plants, gall formation is carried out by**
 Ans. Insects (Ph.D. 2009)
- Q. 683. Female goat is called as**
 Ans. Doe (ARS/NET 2009)
- Q. 684. Mycology is a branch**
 Ans. To study fungi (JRF 2006)
- Q. 685. Disease common in maize, toria, sarson, peas, lentil and gram**
 Ans. Powdery mildew
- Q. 686. Whip tail disease due to molybdenum deficiency is found in**
 Ans. Cauliflower (ARS 2005)
- Q. 687. Olericulture is the study of**
 Ans. Vegetables (ARS/NET 2009)
- Q. 688. Plant / Tree most suitable for growing in wetlands**
 Ans. Eucalyptus (ARS/NET 2009)

- Q. 689.** Presence of mycorrhiza in soils increase availability of
 Ans. Phosphorus (ARS/NET 2009)
- Q. 690.** Element essential for Nitrogen fixation
 Ans. Molybdenum
- Q. 691.** Reciepant of world food prize in the year 2007 was
 Ans. Phillip Nelson
- Q. 692.** Reciepant of world food prize in the year 2008 was
 Ans. Robert Dole and George McGovern
- Q. 693.** Precision farming is
 Ans. Using GPS and modern technology at site (JRF 2008)
- Q.694.** Synecology term was given by
 Ans. Schroter & Kirchener (Year 2009 JRF)
- Q. 695.** Precursor of vitamin A is
 Ans. b-Carotene (JRF 2009)
- Q. 696.** The plants which contain male and female flowers
 Ans. Dioecious plants (JRF)
- Q. 697.** Award given for wildlife conservation in India
 Ans. Amrita Devi Bishnoi Award
- Q. 698.** pF is a measure of
 Ans. Soil moisture (JRF 2010)
- Q. 699.** Which food is designated as "boneless meat" ?
 Ans. Soybean (JRF 2010)
- Q. 700.** Name herbicide which can be applied before planting/sowing
 Ans. Fluchloralin (JRF 2010)

- Q. 701.** Percentage of lint in seed cotton is
 Ans. 33% (JRF 2010)
- Q. 702.** Recovery of sugar from crop sugar cane is about
 Ans. 10% (JRF 2010)
- Q. 703.** Ground water table is measured by
 Ans. Piezometer (JRF 2010)
- Q. 704.** The colour which absorb more radiation is
 Ans. black. (JRF 2010)
- Q. 705.** Most widely cultivated mustard type in India is
 Ans. Indian Mustard (JRF 2010)
- Q. 706.** The element most mobile in soil is
 Ans. Nitrogen (JRF 2010)
- Q. 707.** Progeny of breeder seed in
 Ans. Formation seed (JRF 2010)
- Q. 708.** Pheromone trap attracts the
 Ans. Male moths (JRF 2010)
- Q. 709.** The crop soybean was originated from the country
 Ans. China (JRF 2010)
- Q. 710.** Tundru disease of wheat is caused by
 Ans. Anguina tritici and clavibacter tritici (ARS 2010)
- Q. 711.** Term gene was coined by
 Ans. Johannsen (ARS 2010)
- Q. 712.** Length of Gunter chain is
 Ans. 66 feets (ARS 2010)
- Q. 713.** Lasso is the name of herbicide
 Ans. Alachor (ARS 2010)
- Q. 714.** Scientific name of Popcorn is
 Ans. Zea Mays everta

- Q. 715. Poor man's Timber is
Ans. Bamboo
- Q. 716. Nutrient which is essential for pollen viability in wheat
Ans. Boron (J.R.F. 2010)
- Q. 717. Major crop of rabi in India
Ans. Wheat (JRF 2010)
- Q. 718. Marsh spot in peas is caused by
Ans. Mn deficiency (Ph.D. 2011)
- Q. 719. Food grain production during 2010-11
Ans. 235 MT (JRF 2011)
- Q. 720. CO₂ acceptor enzyme in C₄ plants
Ans. PEP carboxylase (Ph.D. 2011, JRF 2009)
- Q. 721. Chicken and hen disorder in grapes is due to deficiency of
Ans. Zinc (ARS 1999)
- Q. 722. Removal of male bud in Banana is technically known as
Ans. Denovelling (BHU PG 2008, ARS 1999)
- Q. 723. Quince is suitable root stock for
Ans. Sapota (Raj. PG 2009, ARS 1999)
- Q. 724. Longest phase in mitosis is
Ans. Prophase (JRF 2008, 2011)
- Q. 725. Mango Hybrid Ratna is crossed of
Ans. Neelam × Alphanso (JRF 2010, BHU PG 2008, Raj PG 2007)
- Q. 726. National Research centre for Sheep & wool research is situated at
Ans. Avikanagar, Malpura (Raj.) (JRF 2011, Raj PG 2009, BHU PG 2006)

- Q. 727. NRC for Ground nut is situated at
Ans. Junagarh (Guj.) (JRF 2010, ARS 2005)
- Q. 728. Chemical used for preventing fruit drop in grapes is
Ans. NAA 20 PPM (JRF 2011, BHU PG 2008)
- Q. 729. Maximum per capita consumption of fish in country is
Ans. Japan (ARS 2005, JRF 2007)
- Q. 730. Plough which makes V shaped furrow is
Ans. Desi plough (JRF 2009, ARS 2005)
- Q. 731. Arrowing occurs in
Ans. Sugar cane (JRF 2011)
- Q. 732. Rice gene bank is situated in
Ans. Philippines (JRF 2006, 2011, ARS 2005)
- Q. 733. Fruits are generally in nature of
Ans. Acidic (JRF 2007)
- Q. 734. Rain fed area in India is
Ans. 65 M.ha. (JRF 2011)
- Q. 735. The gas which is responsible for acid rain is
Ans. SO₂ & NO₂ (JRF 2008)
- Q. 736. Soil order Vertisols is related to
Ans. Black Soils (JRF 2011, 2007)
- Q. 737. National Agriculture Insurance scheme was started in
Ans. 1999-2000 (JRF 2011, BHU PG 2009)
- Q. 738. The first DG of ICAR was
Ans. Dr. B. P. Pal (JRF 2011, 2006)
- Q. 739. Statistical test used to determine the goodness of fit is
Ans. Chi-Square test (JRF 2010)

- Q. 740.** Cotton leaf curl virus is transmitted by
Ans. White fly (JRF 2004,06, 2011, Ph D. 2005)
- Q. 741.** Citrus canker disease was introduced in India from
Ans. USA (JRF 2009)
- Q. 742.** Hatch & Slack pathway is found in crop
Ans. Maize (JRF 2010)
- Q. 743.** Utera cultivation is mainly practices in
Ans. Chhattisgarh (JRF 2010)
- Q. 744.** National Biodiversity board is situated at
Ans. Chennai (JRF 2010, ARS 2007)
- Q. 745.** Which soil group having highest infiltration rate
Ans. Aridisol (JRF 2009)
- Q. 746.** Crop which is known as camel crop
Ans. Sorghum (JRF 2011, ARS 2007)
- Q. 747.** Apical dominance in Sugarcane is suppressed by
Ans. Cytokinin (JRF 2011, BHU PG 2009)
- Q. 748.** Clove is obtained from
Ans. Bud (JRF 2011, RAJ PG 2010)
- Q. 749.** FMD disease is caused by
Ans. Virus (JRF 2007)
- Q. 750.** Study of Soil Shape is known as
Ans. Geodesy (JRF 2009, ARS 2007)
- Q. 751.** Credit of white revolution goes to
Ans. V. Kurian (JRF 2010, ARS 2007)
- Q. 752.** Bordeaux paste is mixture of
Ans. Copper Sulphate + Lime (JRF 2008, 2011)
- Q. 753.** Blue revolution is related with
Ans. Aquaculture (JRF 2009, BHU PG 2010)

- Q. 754.** Vitamin C is known as
Ans. Ascorbic acid (Raj. PG 2010, JRF 2011)
- Q. 755.** Which form of P_2O_5 is highest available at pH 6.7
Ans. H_2PO_4
- Q. 756.** Major pest of Maize is-
Ans. Chilo Partellus (Stem Borer) (JFR 2009, RPSC Raj.)
- Q. 757.** Depth sowing for soya bean is
Ans. 3-5 cm (JRF 2002, 2009, Ph.D 2010)
- Q. 758.** Most active portion of soil is
Ans. Clay (JRF 2010, BHU PG 2009)
- Q. 759.** NRC for Grapes is situated at
Ans. Pune (JRF 2007, Ph.D 2006)
- Q. 760.** Most important alkaloid in opium is
Ans. Morphin (JRF 2010, Raj. PG 2009)
- Q. 761.** Papain in papaya is extracted from
Ans. Immature fruits (JRF 2011, Raj. PG 2009)
- Q. 762.** IPM term as given by Barlet in year
Ans. 1956 (JRF 2008, BHU PG 2007)
- Q. 763.** Indian Institute of Vegetable is situated at
Ans. Varanasi (JRF 2010)
- Q. 764.** A popular alcoholic drink fenny is made from
Ans. Cashew apple (JRF 2007)
- Q. 765.** White Grub hibernates in stage of
Ans. Adult (RPSC 2007, BHU PG 2008)
- Q. 766.** NRC for women in agriculture is situated in
Ans. Bhubaneswar (JRF 2007)
- Q. 767.** Wheat protein is called as
Ans. Durin (JRF 2004, 2009)

- Q. 768.** Project Directorate of biological control is located at
 Ans. Bangalore (JRF 2010)
- Q. 769.** Pusa Purple long is variety of
 Ans. Brinjal (JRF 2010, BHU PG 2008)
- Q. 770.** Crop which has maximum area in M.P.
 Ans. Soya bean (JRF 2009)
- Q. 771.** State having largest area for wheat
 Ans. U. P. (JRF 2011)
- Q. 772.** The Pyrite is mostly found in
 Ans. Bihar (JRF 2007)
- Q. 773.** The acid which contents in sorghum plants
 Ans. HCN (JRF 2010)
- Q. 774.** Optimum Plant population for Maize/hec
 Ans. 65000 plants (Raj. PG 2009)
- Q. 775.** Reserve Bank of India was set up in
 Ans. 1934 (JRF 2011)
- Q. 776.** Green revolution started in Indian in
 Ans. 1969 (JRF 2010)
- Q. 777.** World environment day is celebrated on
 Ans. 5th June (JRF 2010)
- Q. 778.** Highest consumption of fertilizer in crop
 Ans. Sugar cane (JRF 2011)
- Q. 779.** First herbicide produced in world is
 Ans. 2-4 D (JRF 2009, BHU PG 2007)
- Q. 780.** Trade name of Pendamethalin is
 Ans. Stamp
- Q. 781.** Luxury consumption is generally associate with
 Ans. Potassium

- Q. 782.** Water requirement of Sugar cane is
 Ans. 200 cm (JRF 2009, Ph.D 2005)
- Q. 783.** Pulse which doesn't fix atmospheric Nitrogen is
 Ans. Rajma (JRF 2010)

JRF (Papers-2012)

- Q. 784.** Urea is hydrolyzed by which enzyme-
 Ans. Urease (JRF 2012, JRF 2009, Raj. PG 2008)
- Q. 785.** Progeny of breeder seed is-
 Ans. Foundation Seed (JRF 2012, BHU PG 2002 P.h.D.2008)
- Q. 786.** QPM (Quality Protein Maize) was developed by gene-
 Ans. Opaque-2 (JRF 2012)
- Q. 787.** The permanent property of soil is-
 Ans. Soil Texture (JRF 2012, JRF 2001, RAJ PG 2006)
- Q. 788.** Element which is responsible for stability of protein structure-
 Ans. Sulphur (JRF 2012, 2007)
- Q. 789.** Marsh spot of pea is caused by-
 Ans. Mn deficiency (JRF 2012, BHU PG 2004)
- Q. 790.** Surface temperature of sun is about-
 Ans. 6000 °K (JRF 2012)
- Q. 791.** Mentha arvensis is a type of plant-
 Ans. Aromatic plant (JRF 2012, Raj. PG 2009)
- Q. 792.** Leading state in Isabgol production-
 Ans. Rajasthan (JRF 2012)
- Q. 793.** Fern leaf disease of potato is due to deficiency of-
 Ans. Zn (JRF 2012, BHU Pre PG 2008)

- Q. 794.** Bacteria, actinomycetes, fungi and algae comes under the group of organism-
 Ans. Micro flora (JRF 2012, 2002)
- Q. 795.** Biggest rural employment scheme is-
 Ans. MGNREGA (2 Oct. 2009) (JRF 2012)
- Q. 796.** In groundnut aflatoxin is produced by-
 Ans. Aspergillus flavus (JRF 2012)
- Q. 797.** White grub is mainly confined to which soil-
 Ans. Dry sandy loam soils (JRF 2012, 2006)
- Q. 798.** Per capita cultivable land availability (ha.) in India is-
 Ans. 0.15 Ha. (JRF 2012)
- Q. 799.** Recently terminator technology has been developed in-
 Ans. Cotton (JRF 2012)
- Q. 800.** Tag colour of certified seed is-
 Ans. Blue (JRF 2012, 2003, Raj PG 2006)
- Q. 801.** Protein synthesis takes place in-
 Ans. Rough ER (JRF 2012, 2001, 1998)
- Q. 802.** Enzymes are chemically-
 Ans. Vitamins (JRF 2012, 2009, 2003)
- Q. 803.** Country leading in pears production-
 Ans. China (JRF 2012)
- Q. 804.** State leading in Aonla production-
 Ans. U.P. (JRF 2012)
- Q. 805.** SRI system of paddy was started first at-
 Ans. Madagascar (JRF 2012)
- Q. 806.** Genes are composed of
 Ans. DNA (JRF 2012, 2007)
- Q. 807.** Maximum hybrids developed in which crop-
 Ans. Maize (JRF 2012)

- Q. 808.** Favr - savr is a variety of-
 Ans. Tomato (JRF 2012)
- Q. 809.** PPV & FR authority is located at-
 Ans. New Delhi (JRF 2012)
- Q. 810.** "Hollow heart" in groundnut is caused by-
 Ans. B deficiency (JRF 2012, BHU PG 2005)
- Q. 811.** Pungency in mustard oil is due to-
 Ans. Glucosinolates (JRF 2012, 2002, BHU PG 2007)
- Q. 812.** Most affected crop from stem borer-
 Ans. Maize (JRF 2012, 2002)
- Q. 813.** Organism which is responsible for production of methane from Bio gas plant-
 Ans. Methanobacteria (JRF 2012)
- Q. 814.** Pollination by birds is called-
 Ans. Ornithophily (JRF 2012)
- Q. 815.** Mode of pollination in pearl millet is-
 Ans. Cross pollination (JRF 2012)
- Q. 816.** Concept of plant idiochrome was first given by-
 Ans. Donald (JRF 2012)
- Q. 817.** Most effective herbicide to control Phalaris minor in wheat-
 Ans. Isoproturon (JRF 2012, 2008)
- Q. 818.** Blotter test is used for detection of-
 Ans. Fungi (JRF 2012, BHU PG 2009)
- Q. 819.** Coverage of Bt cotton in cotton production of India is-
 Ans. >90% (JRF 2012)
- Q. 820.** Which oil seed crop NRC is located at Gujarat-
 Ans. Ground Nut (JRF 2012)

- Q. 821. Rice production of worldwide in 2011-**
 Ans. 480 MT (JRF 2012)
- Q. 822. Pesticide active ingredient in cotton has dropped by Bt –**
 Ans. > 50% dropped (JRF 2012)
- Q. 823. Organic source of nicotine-**
 Ans. Tobacco (JRF 2012)
- Q. 824. How many acres are in one hectare.**
 Ans. 2.47 Acre (JRF 2012, Raj PG 2013)
- Q. 825. Non Agricultural institute which has developed 40 varieties of crops**
 Ans. BARC (JRF 2013)
- Q. 826. World Food Summit was organized in year**
 Ans. 1996 (PG BHU 2013)
- Q. 827. Kinnauri Apple mostly produced in state**
 Ans. H.P. (JRF 2013)
- Q. 828. Highest palm oil production in country**
 Ans. Indonesia (JRF 2013)
- Q. 829. Flood tolerant Rice variety**
 Ans. Scuba Rice (JRF 2013)
- Q. 830. Across the world the percent use of water in agriculture**
 Ans. 70% (JRF 2013)
- Q. 831. India's lowest HP tractor**
 Ans. 15 HP Tractor (JRF 2013)
- Q. 832. Country leader in watermelon production**
 Ans. China (JRF 2012)
- Q. 833. Acreage of Rabi Crops in India in 2012-13**
 Ans. 631.37 lac tone (JRF 2013)

- Q. 834. Largest producer of strawberries in world**
 Ans. USA (JRF 2013)
- Q. 835. The flower which is used as natural colour for Holi**
 Ans. Gulmohar (JRF 2012)
- Q. 836. Percent of budget increased in Rashtriya Krishi Vikas Yagna 2012**
 Ans. 8% (JRF 2013)
- Q. 837. India's rank in potato production**
 Ans. Second, (JRF 2012)
- Q. 838. Current certified organic farming area in world**
 Ans. 37 m. ha. (JRF 2013)
- Q. 839. Largest producer of grape fruit in world-**
 Ans. China (JRF 2013)
- Q. 840. National Horticulture Mission was set up in year**
 Ans. 2005-06 (JRF 2013)
- Q. 841. First tractor bought in India in year**
 Ans. 1914 (JRF 2012)
- Q. 842. First MSP was announced by Indian government in**
 Ans. 1966-67 for Wheat (JRF 2012)
- Q. 843. CAGR growth of Horticulture production from last 20 years**
 Ans. 4.2% CAGR (JRF 2102)
- Q. 844. Largest Producer of cashew in world**
 Ans. Nigeria (JRF 2012)
- Q. 845. Percent use of cotton for globally denim production**
 Ans. 17% (JRF 2012)
- Q. 846. Growing potato by hanging the plants in air without soil method called as**
 Ans. Aeroponics (JRF 2012)

Q. 847. Largest exporter of dairy products in world
 Ans. New Zealand (JRF 2012)

Q. 848. India's percent share in world milk production
 Ans. 17% (JRF 2013)

JRF (Papers-2013)

Q. 849. Yellow coloured fruits are rich in
 Ans. Vitamin A

Q. 850. Bengal famine was due to which fungus
 Ans. *Helminthosporium oryzae*

Q. 851. Which gas is responsible for ozone hole formation
 Ans. Chlorofluorocarbon (CFCs)

Q. 852. CRIDA is situated at (Central Research Institute for Dryland Agriculture)
 Ans. Hyderabad (Santosh Nagar) 1985

Q. 853. The element constituent of chlorophyll is
 Ans. Magnesium (Mg)

Q. 854. Nitrogen content in anhydrous ammonia
 Ans. 82%

Q. 855. Water use efficiency is highest under which method
 Ans. Drip irrigation

Q. 856. Fertilizer well suited for submerged soil is
 Ans. Ammonical fertilizer

Q. 857. Botanical name of alfalfa
 Ans. *Medicago sativa*

Q. 858. Plasticity of soil is measured by
 Ans. Atterberg Apparatus

Q. 859. Lowest infiltration rate of soil

Ans. Sodic clayey soil

Q. 860. Availability of which micro nutrient increase with high pH

Ans. Mo (Molybdenum)

Q. 861. Stomata open in plants during at night

Ans. CAM plants

Q. 862. Which nutrient is taken up largely by the diffusion process

Ans. Phosphorus

Q. 863. Readily available form of K in soil in ranges

Ans. 0.1-2%

Q. 864. Required nutrient for soil synthesis in oilseed crops is

Ans. Sulphur

Q. 865. Seed used for commercial seed production

Ans. Certified seed

Q. 866. Tag colour of certified seed is

Ans. Blue

Q. 867. Charcoal rot is due to

Ans. *Macrophomina spp*

Q. 868. ADP to ATP conversion is called

Ans. Phosphorylation

Q. 869. Element essential for osmotic and ionic balance in plants

Ans. K (Potassium)

Q. 870. Nitrogen content in anhydrous ammonia

Ans. About 82%

Q.871. Ripening hormone for crops is

Ans. Ethylene

Q.872. Chemical Oleoresins found in

Ans. Chillies and Capsicum

Q.873. Average rainfall in India is

Ans. 1194 mm

Q.874. First KVK was started at

Ans. Pondicherry

Q.875. Precursors of Ethylene

Ans. Methionine

JRF (Papers-2016)

Q. 1. India's Rank in world in Wheat production

Ans. Second (JRF 2016)

Q. 2. ICRAF is situated at

Ans. Kenya (JRF 2016)

Q. 3. ILRI is situated at

Ans. Ranchi (JRF 2016)

Q. 4. Person and state related to T & V Programme

Ans. Daniel Boner & state- Rajasthan (JRF 2016)

Q. 5. The two national programme which has started in same year in 1999

Ans. NATP & JGSY (JRF 2016)

Q. 6. The ratio of normal GNP to real GNP which can be interpreted as comprehensive price index is called

Ans. GNP Deflator (JRF 2016)

Q. 7. When marginal production is equal to average production then elasticity of production is equal to

Ans. One (JRF 2016, 2006, Raj PG 2008)

Q. 8. Place and year of Asian Development bank (ADB) establishment

Ans. 1966, Manila (JRF 2016)

Q. 9. Gross area irrigated in India

Ans. 92.57 M. ha. (JRF 2016, 2009, 2003)

Q. 10. Highest cropping intensity for the state

Ans. Punjab (189%) (JRF 2016, BHU 2004)

Q. 11. Total cereals Production in 2014-15

Ans. 235.49 MT (JRF 2016, 2010)

Q. 12. Black revolution is related to

Ans. Biofuel/Jatropha production (JRF 2016)

Q. 13. Phone No. of Kisaan Call centre

Ans. 18001801551 (JRF 2016)

Q. 14. Most salt tolerant fruit crop is

Ans. Date palm (JRF 2016, RAJ. PG 2008)

Q. 15. National mission on Micro Irrigation (NMMI) started in year

Ans. 2010 (JRF 2016, Raj PG 2011)

Q. 16. Present Secretary, Department of Agricultural Research and Education (DARE)

Ans. Dr. Trilochan Mohapatra (JRF 2016, 2011, Raj PG 2012)

Q. 17. Present Chairman & M.D. of F.C. I.

Ans. Yogendra Tripathi (JRF 2016)

Q. 18. AICRP on Sesame and Niger is located at

Ans. Jabalpur (M.P.) (JRF 2016)

Q. 19. No. of KVK's under ICAR are

Ans. 645 KVK (JRF 2016, Raj PG 2004, BHU 2005)

Q. 20. Total State Agriculture Universities in 2015

Ans. 63 (JRF 2016, 2010)

- Q. 21.** Agro climatic zones classified by planning commission are
 Ans. 15 zones, (JRF 2016, 2007, BHU 2006)
- Q. 22.** The Indian Journal of Agriculture Sciences published by
 Ans. ICAR (JRF 2016, BHU 2004)
- Q. 23.** State which has highest acidic soils
 Ans. West Bengal (JRF 2016)
- Q. 24.** Non reporting area maximum in India is
 Ans. Jammu & Kashmir (JRF 2016, 2002)
- Q. 25.** Present president of ICAR
 Ans. Dr. Radha Mohan Singh (JRF 2016, 2008, BHU 2006, Raj PG 2007)
- Q. 26.** World forest day is celebrated on
 Ans. 21st March (JRF 2016, BHU 2007)
- Q. 27.** Directorate of Knowledge Management in Agriculture (DKMA) is situated at
 Ans. New Delhi (JRF 2016)
- Q. 28.** Conversion of Rice (Cleaned) of paddy
 Ans. 2/3 of Paddy production (JRF 2016, 2008, Pre PG 2006)
- Q. 29.** Fruit which covers highest area in India
 Ans. Mango (JRF 2016)
- Q. 30.** Duration of North East (Winter) monsoon
 Ans. Jan- March (JRF 2016)
- Q. 31.** Average size of operational holdings by Small farmers
 Ans. 1.42 ha. (JRF 2016, 2006, 2003)
- Q. 32.** Percent share of total cropped area for fruits
 Ans. 2.22% (JRF 2016)

- Q. 33.** Country first in transgenic plants
 Ans. USA (JRF 2016)
- Q. 34.** Spices having highest production in India
 Ans. Chilly (JRF 2016)
- Q. 35.** Mango productivity tone/ha in India
 Ans. 7.3 tone/ha (JRF 2016)
- Q. 36.** India's percent share contribution in world production of Rice
 Ans. 21.47% (JRF 2016)
- Q. 37.** Percent growth in GVA in FY 2014-15
 Ans. 7.2% (JRF 2016)
- Q. 38.** MSP rupees increased /Qtl for Wheat from last year
 Ans. Rs. 75 (JRF 2016)
- Q. 39.** What is Nutrient Base Subsidy (NBS) for Phosphorous in 2014-15
 Ans. Rs.18.67/kg. (JRF 2016)
- Q. 40.** N P K use ratio during 2014-15
 Ans. (N) 6.7 : (P) 2.4 : (K) 1 (JRF 2016, 2004, Raj PG 2005)
- Q. 41.** Import of DAP in 2014-15
 Ans. 3.85 Million tone's (JRF 2016)
- Q. 42.** State having highest population below poverty line is
 Ans. Odhisha (JRF 2016)
- Q. 43.** Per capita availability of milk in India
 Ans. 322 gm/Day/person (JRF 2016, JRF 2003, BHU 2006, Raj PG 2004)
- Q. 44.** Which product contribute highest value in Agri Exports
 Ans. Marine products (JRF 2016)

- Q. 45. Which State is No. 1 for Total pulses production**
 Ans. M.P. (JRF 2016, 2004)
- Q. 46. Country leader in N+ P+K Consumption**
 Ans. China (JRF 2016)
- Q. 47. Country having lowest density people per Sq. km**
 Ans. Australia (3 person/sq/km) (JRF 2016)
- Q. 48. India's Rank in world Potato production**
 Ans. Second (JRF 2016, BHU 2006)
- Q. 49. Average yield per/ha of Wheat in India**
 Ans. 3145 kg./ha. (JRF 2016, 2005)
- Q. 50. Percent contribution of livestock of India in world**
 Ans. 15% (JRF 2016)
- Q. 51. Head Quarter of Indian Tea Board is situated at**
 Ans. Kolkata (JRF 2016)
- Q. 52. Director General of International Rice Research Institute**
 Ans. Dr. Matthew Morell (JRF 2016)
- Q. 53. Full form of NOFRI**
 Ans. National Organic Farming Research institute (JRF 2016)
- Q. 54. Sterility is due to deficiency of vitamin**
 Ans. Vitamin E (JRF 2016, 2004, Raj PG 2007, BHU 2006)
- Q. 55. Term Biotechnology was coined by**
 Ans. Karl Ereky (1919) (JRF 2016)
- Q. 56. Final product of Glycolysis is**
 Ans. Pyruvate
 (JRF 2016, 2011, 04, Raj PG 2005, BHU 2007)
- Q. 57. Transplanting a cell, tissue or organ from one nutrient medium to another called as**
 Ans. Subculture (JRF 2016)

- Q. 58. Enzymes that attack bonds in DNA**
 Ans. DNAases (JRF 2016)
- Q. 59. The techniques used for bacterial enzymes in vitro amplification of DNA known as**
 Ans. PCR technique (JRF 2016)
- Q. 60. Soils which have pH < 4.0 known as**
 Ans. Cat Soils (JRF 2016, 2008, Raj PG 2009)
- Q. 61. Nutrient essential for oil seeds crop is**
 Ans. Sulphur (JRF 2015, 2009, 2004, BHU 2006, Raj PG 2008)
- Q. 62. Particle density of most of the soils is**
 Ans. 2.65mg/cm³ (JRF 2016, 2008, 2005, 2002, BHU 2006, Raj PG 2009)
- Q. 63. Oil percent in ground nut is**
 Ans. 40-45% (JRF 2016, 2011, Raj PG 2010, BHU 2003)
- Q. 64. Sugarcane tying should be done in the month of**
 Ans. August (JRF 2016)
- Q. 65. Best variety of gram for dry land is**
 Ans. C-235 (JRF 2016, 2006, Raj PG 2009)
- Q. 66. Bio herbicide used in Rice is**
 Ans. Collego (JRF 2016)
- Q. 67. Saline tolerant rice variety is**
 Ans. SR 26 B (JRF 2016)
- Q. 68. Which pattern of planting has max plant population**
 Ans. Cubodial pattern
 (JRF 2016, 2007, BHU 2004, Raj PG 2010)
- Q. 69. White grub is type of pest**
 Ans. Polyphages
 (JRF 2016, 2008, Raj PG 2010, BHU 2005)

Q. 70. Vector of grassy stunt disease is

Ans. Brown plant hopper

(JRF 2016, 2006, Raj PG 2010, BHU 2003)

Q. 71. Brown rust in wheat is due to

Ans. Puccinia graminis recondite

(JRF 2016, 2005, Raj PG 2006, BHU 2005)

Q. 72. When two variables move in the same direction correlation is called

Ans. Positive

(JRF 2016, 2005, Raj PG 2003, BHU 2004)

Q. 73. Which measure of dispersion is considered as best

Ans. Standard deviation

(JRF 2016, 2002, Raj PG 2003, BHU 2004)

Q. 74. Natural scale indicates'

Ans. Absolute changes

(JRF 2016, 2004)

Q. 75. 'F' test can be used for testing the significance of

Ans. Several difference

(JRF 2016, 2002, Raj PG 207, BHU 2006)

Table 1. Founders/Fathers of Various Fields

Justus von Liebig	— Father of Agricultural Chemistry
Aristotle	— Father of Biology
F. Galton	— Father Eugenics
Theophrastus	— Father of Botany
Aristotle	— Father of Zoology
George Pallade	— Father of Modern Cell Biology
Edward Osborne Wilson	— Father of Sociobiology
G. J. Mendel	— Father of Genetics
Bateson	— Father of Modern Genetics
Carl Correns	— Father of Cytoplasmic Inheritance
Stephen Hales	— Father of Plant Physiology
A.V. Leeuwenhoek	— Father of Bacteriology
Louis Pasteur	— Father of Fermentation, Microbiology
C. Linnaeus	— Father of Taxonomy
Malpighi	— Father of Microscopic Anatomy
N. Grew	— Father of Plant Anatomy
Sir R.A. Fisher	— Father of Population Genetics
Anton DeBary	— Father of Modern Plant Pathology
Micheli	— Father of Mycology
M.W. Beijerinck	— Father of Virology
G. Haberlandt	— Father of Plant Tissue Culture
Paul Berg	— Father of Genetic Engineering
Edward Jenner	— Father of Immunology
Captain John Grant	— Father of vital statistics
Auguste Comte	— Father of Sociology
Peter Decresenzi	— Father of Agronomy
Nathan Augustus Cobb.	— Father of Nematology
Norman E. Borlaug	— Father of Green Revolution
Alec Jeffreys	— Father of DNA Printing
Harrison	— Father of Tissue culture
Salim Ali	— Birdman of India
John Snow	— Father of Epidemiology

Table 2. Superlatives of Plants

- Largest marine alga** — *Macrocystis macrocarpa* (a brown alga, attaining a length of 600 feet)
- Largest Unicellular organism** — *Acetabularia* (a marine green alga)
- Largest fern** — *Alsophila excelsa* (a tree fern)
- Tallest tree** — *Sequoia gigantea* (a gymnosperm found in America)
- Tallest angiosperm** — *Eucalyptus* (Australian eucalyptus)
(Also considered as the tallest tree)
- Largest herb** — *Musa paradisiaca*
- Largest grass** — *Bamboosa*
- Largest ovule** — *Cycas circinalis*
- Largest seed** — *Lodoicea seychellarum* (double coconut)
- Largest leaf** — *Victoria regia* (angiosperm)
- Largest inflorescence** — *Puya raimondii*
- Largest flower** — *Rafflesia arnoldii* (Diameter 1 meter, Weight about 8-10 kg)
- Largest fruit** — *Lodoicea maldivica*
- Smallest bacteria** — *Dialister pneumosintes*
- Smallest mycoplasma** — *Mycoplasma gallisepticum*
(smallest unicellular organism)
- Smallest pteridophyte** — *Azolla* (a water fern)
- Smallest gymnosperm** — *Zamia pygmaea*
- Smallest angiosperm** — *Wolffia microscopica*
- Smallest seed** — *Orchids* (Diameter 0.1 mm)
- Smallest flower** — *Wolffia*
- Minimum number of chromosomes** — *Haplopappus gracilis* ($2n = 4$)
- Lightest wood** — *Ochroma pyramidale*
- Sprilluna : (Small spiral) :** Botanical name of a tiny bluish green variety of algae scarcely longer than half a millimetre in length.

Nano Technology

Term Nanotechnology was coined by Nario Taniguchi in 1974 at Univ. of Tokyo.

Nanotechnology is the science which aims to create molecule based computer chips and other devices that are thousand of times smaller than the existing technologies.

A nanometer is about the width of six bonded atoms, 1/40000 width of hair. DNA, our genetic material is in 2.5 nanometer range, while red blood cells are approximately 2.5 micrometers (2,500 nanometers).

Precision Farming

It is an agricultural concept relying on the existence of in-field variability. It requires the use of new technologies such as GPS (Global Positioning System), sensors, satellites or aerial images and information management tools to assess and understand the variations.

Satellites allow farmers to easily survey their land. GPS monitor can find the location of a field to within one meter. It can then present a series of GIS maps that demonstrate which fields are moist or dry, and where there is erosion of soil and other soil factors that stunt crop growth. The data on computer can be used by the farmer to automatically regulate the machine application of fertilizer and pesticide.

The US Department of Agriculture, NASA and NOAA (National Oceanic and Atmospheric Administration) are among key agencies contributing to this revolution to improve farming at large scale. The goal is to reduce negative impacts of farming on the environment that come from over applications of fertilizers and chemicals and improve profits.

Contract Farming

It is the mechanism where the private corporate sector can establish linkage between farmers and markets. This needs to be backed by ensuring effective mechanism for contract registration and dispute resolution, alongwith adequate information and support so that small farmers are able to enter into collective contracts. This arrangement is attempted in potato, chilli and tomato crops.

Hydroponics

Hydroponic developed in Latin America and can be defined as "the cultivation of plants in water without soil. In 1978 hydroponic pioneer Dr. Howard Resh published the book Hydroponics Food Production. Prof William Ferderick Gericke of California University, Berkley defined hydroponics as crop growth in mineral nutrition solutions with no solid medium for the roots. Growers all over the world are using hydroponics technique due to the lack of a large water supply or fertile farmland. Home gardeners use hydroponics on smaller scale to grow fresh vegetables year round at the apartment or balconies of the homes. Green houses and nurseries also grow plants in a soil less peat or bark based growing mix, then nutrients are applied through water supply.

Advantages of hydroponics

1. There are no weeds to remove
2. Soil borne pests and diseases are minimized.
3. Hydroponic plants are healthier and more vigorous.
4. Plants can mature faster and yield an earlier harvest.
5. Hydroponic gardens use less space since the roots need not to spread out.
6. Hydroponic can offer cultivating plants in desert sands and they can be transformed into productive lands.
7. Water can be reused in hydroponics and less is wasted as runoff and evaporation.

Disadvantages:

1. Hydroponic conditions create an environment that stimulates *salmonella* growth.
2. Pathogens attack including damp off due to *verticillium wilt* due to high moisture levels and over watering of soil based plants.
3. Different hydroponic plants require different fertilizers.

Two main types of hydroponics are;

1. Solution culture; 2. Medium culture

Solution culture does not use solid medium for the roots just the nutrient solution. Three main types of solution culture are; (i) state (ii) Continuous flow and (iii) aeroponics

Medium culture method have a solid medium for the roots e.g. sand culture, gravel, or rockwood.

For all techniques most hydroponic reservoirs are now built of plastic but other materials can be used including concrete, glass, metal, vegetable solids and woods.

Hydroponic averages compared with ordinary soil yields as under:

Crop	Hydroponic equivalent per acre	Agricultural average per acre
Wheat	3624 kg	2536 kg
Rice	5436 kg	407 kg
Potatoes	70666 kg	8150 kg
Cabbage	8150 kg	5890 kg
Tomatoes	181,200 kg	9000 kg

Aeroponics: It is a system where roots are continuously or discontinuously kept in an environment saturated with fine drops of nutrient solution (a mist or a aerosol). The method require no substrate and entails growing plants with their roots suspended in a deep air or growth chamber with the roots periodically wetted with a fine mist of atomized nutrients. This technique have proved to be commercial successful for propagation, seed germination, seed potato production, tomato production, leaf crop and micro greens etc.

National Mission for Sustainable Agriculture

Govt. to promote organic farming methods, combining modern technology with traditional farming practices.

Table 3. Varieties of selected crops

RICE	
Variety	Remarks
GEB 24, BCP 1, NP 130	Superior quality rice varieties
Basmati 370, Type 3	Aromatic
Pusa RH-10	First Super fine aromatic basmati hybrid
TKM, Pattambi	Disease-Pest resistant
SR 26 B	Saline tolerant
FR 13A/43 B, Madhukar	Flood
Jalmagna, Jaisuria	Deep water ecology
Jaya	High yield
Vikramarya	Tungro-virus resistant
Ajaya	Bacterial Blight resistant
Phalguna	Gall-midge resistant
Pusa Basmati-1	Worlds first high yield dwarf export quality aromatic rice
IR-8	First dwarf rice variety introduced in India
Lunishree	World's first super rice variety for Saline/alkaline conditions
Yamini, Krishna Hansa, Vasumati, Pusa Sugandh-2, Pusa Sugandh-3	

WHEAT	
Lermoroja, Sonora-64	Direct introductions (imported)
Kalyan Sona, Sonalika	Selections
HD 2285, WH 542, UP 2338	North West plains
K 8804, K 9006, HP 1633	N-E plains
HI 1077, GW 190	Central zone
Sujata, C 306, K 8027	Rainfed region
Malviya Wheat-510, HD 2733, HW 2045	
PIGEON PEA (REDGRAM)	
* ICPH-8	First Hybrid in the world
MUSTARD	
Pusa Jai Kisan	First Soma clonal selection
Kalyani, Pusabold, Varuna	
SUGARCANE	
CoC 671	Wonder Cane :Recovery = 10%
Gandak, Rajbhog	
COTTON	
Sujata	First Egyptian variety
MANGO	
Arka Aruna	Banganapalli × Alphonso (High yields: 20-24 t/ha)
Mallika	Neelam × Dashera
Amrapali	Dashera × Neelam

Ratna	Neelam X Alphansó (Sponge tissue disease resistant)
Sindhu	Ratna X Alphanso (Seedless)
GRAPE	
Arkavatr, Arka Neelmani, Dilkush	
Thompson	Seedless
CITRUS	
Pramalini, Vikram	
PAPAYA	
Pusa Delicious, Pusa Majestic	
GUAVA	
Sardar (Lucknows-49), Safeda	
ROSE	
Mrunalini, Dr.B.P.Pal, Jawahar, Priyadarshini, Dr N.S.Randhawa	
Chitra	Thornless variety
CHRYSANTHEMUM	
Indira, Rakhee, Shanti, Vasanti, Red gold	

Table 4. Important Crops and Their Nativity

<i>Crop</i>	<i>Origin</i>	<i>Crop</i>	<i>Origin</i>
Rice	South-East Asia	Oat	India
Sugarcane	South-East Asia	Mango	India
Wheat	South-West Asia	Sorghum	Africa
Barley	South-West Asia	Bajra	Africa
Buckwheat	South-West Asia	Sunhemp	Africa
Turmeric	India	Seasamum	Africa
Lucerne	South-West Asia	Castor	Africa
Tobacco	America	Clusterbean	Africa
Maize	South America	Groundnut	Brazil
Toesinate	Mexico	Bearseem	Egypt
Potato	Peru	Napier grass	Rhodesia
Tomato	Peru	Soybean	China
Linseed	Afghanistan	Rapeseed	China
Sunflower	USA	Black pepper	India
Arhar	India	Tea	China
Mung	India	Coffee	Ethiopia
Urd	India	Chilli	Mexico
Cotton	India	Cow pea	India
Jute	India	Mustard	China
Kutki	India	Red gram	Africa & India
Bengal gram	South-West Asia		

Table 5. Plant Growth Substances

Substances	Function
Auxins	Stimulates elongation of cells of stems and coleoptiles Cell division & Root formation are functions of auxins. Can be used as herbicide: Enhances fruit set and fruit ripening. (Discovered by Darwin 1880)
Cytokinins	To stimulate cell division Promotes orderly development of embryos of seed Break dormancy of seeds and buds Delays senescence.
Gibberellins	Increases cell division & cell elongation Increase in size of leaf, flower, fruit Dormancy is broken & flowering is induced
Abscisic Acid	Dormancy is induced Facilitates stomata closure
Ethylene	Ripening of fruits (or) Iso-diametric growth of stems and roots

Table 6. Plant Growth Substances Used in Agriculture and Horticulture

Plant growth parameter	Use
2, 4 -D	Herbicide
Glyphosine, Ethepon	Sugarcane ripener
Abscisic acid	Cotton defoliant
NAA	Increasing number of flowers
Gibberllins	Production of seedless grape, increase in size of fruits.
Ethylene	Regulating ripening of fruits.

Table 7. Food Grain Production (in India)

The production estimates for major crops (mn tonnes)

Crop	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Rice	99.18	89.09	95.98	105.31	105.24	106.54	103.04
Wheat	80.68	80.8	86.87	94.88	93.51	95.91	95.76
Jowar	7.25	6.7	7	6.01	5.28	5.39	na
Bajra	8.89	6.51	10.37	10.28	8.74	9.18	na
Maize	19.73	16.72	21.73	21.76	22.26	24.35	22.97
Coarse Cereals	40.04	33.55	43.4	42.04	40.04	43.05	39.83
Tur	2.27	2.46	2.86	2.65	3.02	3.29	2.75
Gram	7.06	7.48	8.22	7.7	8.83	9.88	8.28
Urad	1.17	1.24	1.76	1.77	1.9	1.51	na
Moong	1.03	0.69	1.8	1.63	1.19	1.5	na
Total Pulses	14.57	14.66	18.24	17.09	18.34	19.27	18.43
Total Foodgrains	234.47	218.11	244.49	259.32	257.13	264.77	257.07

Source: PHD Research Bureau, compiled from Ministry of Agriculture

Note: # million bales of 170 kgs each; ## million bales of 180 kgs each

Table 9. Chemical properties of different soils

Type of soils	Parameter		
	pH	EC	ESP
1. Saline	< 8.5	> 4	< 15
2. Sodic	< 8.5	> 4	> 15
3. Alkali	> 8.5	< 4	> 15

Table 10: Thermal properties of common soils and soil components

Component	Density (g/cm ³)	Specific heat (cal/g/degree)	Thermal conductivity (cal/cm/degree/second)	Thermal diffusivity (cm ² /second)
Clay	1.8	0.8	0.0028	0.002
Humus soil	0.3	0.3	0.00027	0.003
Wet sandy soil	1.6	0.4	0.0064	0.01
Air	0.0012	0.24	0.00005	0.1667
Water	1.0	1.0	0.0014	0.0014
Ice	0.917	0.505	0.005	0.0108

SOME FACTS ABOUT SOILS

Vasily Vasil'evich Dokuchaev is commonly regarded as the father of soil science, he was the first person to make wide geographical investigations of different soil types.

Weathering is a process by which rocks are chemically or physically disintegrate into fragments.

1. Clay soils have higher pore space than sandy soils.
2. Bulk density of soil is always smaller than its particle density. Bulk density of sub soils is higher as compared to surface soils.
3. Aluvial soil group is dominant in India.
4. *Soil profile* is a vertical section of the soil from the surface through all its horizons or Soils are characterized by a definite sequence of horizons known as *soil profile*.
5. For irrigated agriculture best suitable soil is red soil.
6. Soil which are most suitable for most of the crops are sandy loams.
7. For dry land agriculture black soils are best suitable.
8. (C.N.) Carbon nitrogen ratio of normal soils is 10-12 : 1.
9. Humus of soils is a product of plant and animal residues decomposition.
10. Soil structure is the arrangement of aggregates in soil.
11. *Granular & Crumb* is most preferable soil structure for agriculture.
12. Optimum bulk density of soils preferable is 1.2 to 1.6 g/cc
13. Diameter of clay particle is less than 0.002 mm.
14. Diameter of fine sand particle is 0.02-0.2 mm.
15. Diameter of silt particle is 0.02-0.002 mm.
16. Taxonomically organic soil are *Histosols*.
17. *Organic soils* are extensively composed of plant remains peat and muck.
18. *Peat* is a partially decomposed plant accumulated either in water or in a water saturated soil.
19. *Muck* is decomposed plant remains.
20. *Alfisols soils* are mostly high in respect of their fertility and are used either as crop land or forest or range land.

21. *Texture* refers to the size distribution of soil particles in a soil. It is important in determining the water holding capacity of soil.
22. *Porosity* is the ratio of the volume of pores to the total soil volume.
23. **Edaphology** is the study of the soil properties in relation to higher plant.
24. **Pedalogy** refers to the study of origin of the soils in their natural environment, its classification and description.
Pedosphere: It is the sum of the planet's all soil ecosystems.
25. **Largest soil group of India:** Alluvial soils
26. Yellow colour of soil is due to higher degree of hydration of ferric oxide.
27. Red colour of red soils is due to presence of *iron oxide*.
28. Pore space is space present between the soil particles in a given soil sample.
Petrology: The branch of science concerned with the origin, structure, and composition of rocks.
Carbon nitrogen ratio: The ratio of weight of organic carbon to the weight of total nitrogen in soil or in organic material.
Adhesion: Molecular attraction that holds surfaces of two substances in contact. (Like soil particles and water).
Soil Fertility: Ability of a soil to supply essential elements for plant growth without a toxic concentration of any element.
Soil productivity: Soils capacity to produce certain yield of crops or other plants with optimum management.
Cation exchange capacity; It is amount of exchangeable cations a soil can sustain. The soils which have high cation exchange capacity hold nutrients better and fertile Cation exchange capacity of clay, sand and humus soils are about 30, 9 & 200 milliequivalents per 100 grams. Exchangeable cations available in soil particles include Aluminium (Al^{3+}), with the strongest attachment followed by hydrogen (H^+), calcium (Ca^{2+}), magnesium (Mg^{2+}), potassium (K^+), ammonia (NH_4^+), and sodium (Na^+). Cation exchange capacity is important because it allows us to understand the necessary supplemental soil fertility requirements.

Tilth. It is the physical condition of soil related to the ease of, tillage, fitness of soil as seabed and desirability for seedling emergence and root penetration.

Tillage: Mechanical manipulation or modification of soil conditions for plant growth purposes of tillage are (i) to manage crop residues (ii) to kill weeds and (iii) to alter soil structure especially preparation of soil for planting seeds or seedlings.

Horizon: A layer of soil approximately parallel to the surface, that has distinct characteristics produced by soil forming process.

Sodic soils: Sodic soils are characterized by a disproportionately high concentration of sodium (Na) in their cation exchange complex. A non saline soil.

SOIL GROUPS

Alfisols: Soils with gray to brown surface horizons, medium to high supply of bases and B-horizons of alluvial clay accumulation usually fertile.

Ardisols: Soils of dry regions/climate. Low in organic matter. Have pedogenic horizons.

Entisols: Soils not having any pedogenic horizons. These soils may found in any types of climate on very recent geomorphic rocks.

Histosols: Organic soils formed from organic matter and do not have clay.

Inceptisols: Mineral soils with beginning or inception of profile development.

Mollisols: Soils with nearly black organic rich surface horizons and high supply of bases.

Oxisols: Soils with residual of accumulation of non-activity clays, free oxides, kaolin and quartz, found in tropical climates.

Ultisols: Soils low in bases and have subsurface horizons of illuvial clay accumulations. Usually moist.

Vertisols: Clayey soils with high shrink-swell potential having wide, deep cracks when dry. These soils have distinct wet and dry period throughout the year.

SOME TERMS DEFINED

1. **Agro ecosystem:** The land or area used for crops, pasture and livestock, the adjacent uncultivated land that supports other vegetation and wildlife, and the associated atmosphere the underlying soils, groundwater, and drainage networks.
2. **Alley cropping:** Planting of crops in strips with rows of trees or shrubs on each side.
3. **Amino Acids:** These are fundamental building blocks of proteins. There are 20 naturally occurring amino acids in animals and around 100 or more found in plants.
4. **Annual :** Plant that grows, sets seed and dies in one growing season.
5. **Arable land :** Land that can be cultivated to grow crops
6. **Aridity:** A measure of dryness or water deficiency. An index based on water deficiency over water need.
7. **Azotobacter:** Azotobacter is defined as a genus of free living soil microbes that are responsible for nitrogen fixing in the atmosphere. These microbes play a very significant role by synthesizing some biologically active substances which helps in stimulating plant growth. Azotobacter are mainly used in agriculture, most importantly in nitrogen biofertilizers such as azotobacterin.
8. **Biodiversity:** The variability among living organisms from all sources and the ecological complexes of which they are part and include diversity within species or between species and of ecosystems.
9. **Biofuel:** Gas (as methane) or liquid fuel (ethyl alcohol) made from plant material (biomass).
10. **Biofertilizers:** These are organisms that enrich the nutrient quality of soil. Main sources of biofertilizers are bacteria, fungi and cyanobacteria (blue green algae).
11. **Biome:** terrestrial regions characterized by certain types of vegetation and other forms of life.

12. **Carbon credit:** A unit related to the reduction of one ton of CO₂ emission from the baseline of any project or activity.
13. **Carbohydrates:** They are the compounds either aldehydes or ketones having an empirical formula (CH₂O), *i.e.* they are composed of carbon, O₂ and H.
14. **Chemosynthesis :** Process of carbohydrate synthesis in which the organisms use chemical reactions to obtain energy from inorganic compounds. *Example* bacteria of the genus Nitrosomonas oxidise ammonia to nitrite.
15. **Chromosomes:** Thread or rod like structure in eukaryotes found in nucleus; made up of nucleoprotein and contain all the nuclear genes. The paired, self-replicating genetic structures of cells that contain the cellular DNA; the nucleotide sequence of the DNA encodes the linear array of genes.
16. **Chromatid:** A thread of DNA formed during cell division when a chromosome splits along its length.
17. **Cistron:** A unit function in DNA. One DNA cistron specifies one polypeptide chain in protein synthesis.
18. **Clone:** All individuals derived by vegetative propagation from a single original individual.
19. **Coenzymes:** These are organic molecules that are required by certain enzymes to carry out catalysis. They bind to the active site of the enzyme and participate in catalysis but are not considered substrates of the reaction. They often function as intermediate carriers of electrons, specific atoms or functional groups that are transferred in the overall reaction. An example is the role of NAD in the transfer of electrons in certain coupled oxidation reduction reactions. Some examples are: Nicotine adenine dinucleotide (NAD), nicotine adenine dinucleotide phosphate (NADP), flavine adenine dinucleotide (FAD), Thiamine pyrophosphate (thiamine vit. B₁) and biotin.
20. **Cofactor:** It is a non-protein chemical compound that is bound (either tightly or loosely) to a protein and is required for the

- protein's biological activity. These proteins are commonly enzymes and cofactors can be considered as "helper molecules/ions" that assist in biochemical transformations. Cofactors are often classified as inorganic substances that are required for, or increase the rate of, catalysis. Some examples are Zn⁺⁺, Fe⁺⁺⁺ or Fe⁺⁺, Cu⁺⁺ or Cu⁺, K⁺ and Mg⁺⁺.
21. **Embryogenesis:** Embryogenesis is a process whereby a plant is formed from one cell in a tissue, or callus by the normal zygotic pathway. Process is initiated by hormones or in the absence of hormones (*e.g.*, carrot, bromegrass).
 22. **Coniferous trees:** Cone bearing trees, mostly evergreens, that have needle-shaped or scale like leaves.
 23. **Contour farming:** Ploughing and planting across the changing slope, rather than in straight lines to help retain water and reduce soil erosion.
 24. **Crust solid outer zones of the earth.** It consists of oceanic crust and continental crust.
 25. **Dioxins:** Family of 75 chlorinated hydrocarbon compounds formed by unwanted by-products in chemical reactions involving chlorine and hydrogen, usually at high temperature.
 26. **Ecological footprint:** Amount of biologically productive land and water needed to supply a population with the renewable resources it uses and to absorb or dispose of the wastes from such resource use. It measures the average environmental impact of populations in different countries and areas.
 27. **Ecological tipping point:** Point in the development of an environmental problem where a threshold level is reached, causing an irreversible shift in the behaviour of a natural system.
 28. **Enzymes:** They help in catalyzing the biochemical and biological reactions by binding to the substrate at the substrate binding sites and also help in digestion.
 29. **Explant:** A plant organ or piece of tissue used to initiate a tissue culture.
 30. **Famine:** Widespread malnutrition and starvation in a particular area because of a shortage of food, usually caused by drought,

- war, flood, earthquake, or other catastrophic events that disrupt food production and distribution.
31. **Fermentation:** It is the process of energy production in a cell under anaerobic conditions without oxygen.
 32. **Fishprint:** Area of ocean needed to sustain the consumption of an average person, a nation, or the world.
 33. **Food web:** Complex network of many interconnected food chains and feeding relationships.
 34. **Functional agro-biodiversity:** Those elements of biodiversity on the scale of agricultural fields or landscapes; which provide ecosystem services that support sustainable agricultural production and can also deliver benefits to regional and global environment and to public at large.
 35. **Fuzz:** Non separable part of fiber attached to cotton seeds.
 36. **Gene:** A chromosomal segment that codes for a single functional polypeptide chain or RNA molecule.
 37. **Gene duplication:** Genetic alteration in which a segment of DNA is repeated. Duplications may appear anywhere, but where the duplicated segment is adjacent to the original one is called *tandem duplication*.
 38. **Genetic drift:** It is the change in the relative frequency in which a gene variant occurs in a population due to random sampling and chance rather than natural selection. In genetic drift, a population experiences a change in the frequency of a given allele; prompted by random luck rather than a need for adaptation.
 39. **Gibberellins:** A group of plant hormones responsible for stimulation of the growth of leaves and shoots in general and internodal length of genetically dwarf plants in particular.
 40. **Gossypol (C₃₀H₃₀O₈):** It is a polyphenol derived from the cotton plant. It acts as a inhibitor for several dehydrogenase enzymes. It is a yellow pigment.
 41. **Green revolution:** Popular term for the introduction of scientifically bred or selected varieties of grain (including rice,

- wheat, and corn) that, with adequate inputs of fertilizer and water, can greatly increase crop yields.
42. **Guttation:** Loss of water in the liquid state from uninjured parts of plants is known as guttation. It usually occurs from tips and margins of leaves during night or early morning when there is high atmospheric humidity.
 43. **Herbarium:** It is a collection of preserved plant specimens. These specimens may be whole plants or plant parts; these are usually in dry form, mounted on sheet or may be kept in alcohol or other preservative.
 44. **Hormones:** They specifically bind to the receptors to carry out metabolic activity in the body.
 45. **Homokaryon:** A bi or multinucleate cell having nuclei of the same kind in a common cytoplasm.
 46. **Humus:** Slightly soluble residue of undigested or partially decomposed organic material in topsoil. This material helps retain water and water-soluble nutrients, which can be taken up by plant roots.
 47. **Hydrolysis :** A process that occurs when a large molecule is broken down into smaller parts by the addition of water.
 48. **Hybrid :** Offsprings received from two genetically dissimilar individuals, strains, purelines etc.
 49. **Inoculum:** A biological material (like a virus or toxin or immune serum) that is injected to increase immunity to a particular
 50. **Inter cropping:** Growing two or more different crops at the same time on a plot. Example a carbohydrate-rich grain that depletes soil nitrogen and protein rich legume that adds nitrogen to the soil may be intercropped.
 51. **Jhum cultivation :** A shifting cultivation usually practiced in Bangladesh and Assam tract, remains at one place till the fertility is there otherwise change the place.
 52. **Leaching:** Process in which various chemicals in upper layers of soil are dissolved and carried to lower layers and in some cases to ground water.

53. **Lichen** : These are composite organisms consisting of a association of a fungus with a photosynthetic partner usually either a green alga (commonly *Trebouxia*) or (commonly *Nostoc*). The morphology, physiology and biochemistry of lichens are very different from those of the isolated fungus and alga in culture. Lichens occur in some of the most extreme environments on Earth, hot deserts, rocky coasts and toxic slag heaps.
54. **Lipids**: Compounds composed of C, O₂ and H which are insoluble in water.
55. **Lenticel** : A process tissue consisting of cells with large intercellular spaces.
56. **Loams**: Soils containing a mixture of clay, sand, silt and humus. Good for growing most crops.
57. **Microtubules** : Submicroscopic, hollow tubes of protein that function throughout the cytoplasm to provide structural support and enable movement.
58. **Micronutrients**: Chemical elements that organism need in smaller trace amounts to live, grow or reproduce like Ferrous, copper, chlorine and Iodine, zinc etc.
59. **Molecular farming**: The synthesis of certain chemicals through transgenic plants is known as molecular farming. The genes conferring quality characters are being transferred to get increased synthesis of some chemicals *viz.* Mannitol dehydrogenase gene from *Escherichia coli* is transferred to tobacco for increased production of mannitol.
60. **Monoculture**: Cultivation of a single crop, usually on a large area of land.
61. **Mycorrhiza**: This term refers to symbiotic association between the fungus and the roots of higher plants. Some of these fungi are present on the root surface only whereas others enter into roots as well. These fungus solubilizes phosphorus, produce plant growth promoting substances and protect host plant from soil pathogens. Mycorrhiza is classified into two types (i) ectotrophic and (ii) endotrophic

62. **Mycotoxin**: A deadly poison produced by fungi.
63. **Nitrogenase**: The enzyme used by some organisms to fix atmospheric gas (N₂). It is the only known family of enzymes which accomplishes this process. Dinitrogen is relatively inert because each atom of nitrogen has three open orbitals in its outer electron shell to bond with another atom, so that if two nitrogen atoms bond to each other, they do-so in all three of these orbitals.
64. **Nucleic acid**: Complex molecules that store and transfer information within a cell. They are constructed of fundamental monomers known as nucleotides.
65. **Nucleoli**: Nuclear structures composed of completed or partially completed ribosomes and the specific parts of chromosomes that contain the information for their construction.
66. **Nucleoplasm**: The liquid matrix of the nucleus composed of a mixture of water and the molecules used in the construction of the rest of the nuclear structure.
67. **Nucleotide**: A fundamental subunit of nucleic acid constructed of a phosphate group, sugar, and an organic nitrogenous base.
68. **Oogenesis**: The specific name given to the gametogenesis process that leads to the formation of eggs.
69. **Organelles**: Cellular structures that perform specific functions in the cell.
70. **Orthologues**: Homologous proteins that perform the same function in different species.
71. **Perennial**: Crops that can live for more than 2 years.
72. **Photoperiodism**: It is the ability of plants to detect and respond to the relative length of day and night to which plant is exposed.
73. **Phytochrome**: A pigment which is a protein molecule, located within the plasma membranes of the leaf cells that is extremely sensitive to certain forms of light.

74. **Plasmids:** Small and circular DNA molecule which has self replicating property in the host cell or an extrachromosomal genetic plant found in bacterial cell and can replicate independently of chromosomal DNA.
75. **Proteins:** Compounds which are composed of N, H, O₂ and carbon.
76. **Polymerase chain reactions (PCR):** A method for amplifying a DNA base sequence using a heat stable polymerase and two primers, one complementary to the (+) strand at one end of the sequence to be amplified and other complementary (-) strand at the other end. The faithfulness of reproduction of the sequence is to the fidelity of the polymerase. PCR was developed by Karl Mullis in the year 1980.
77. **Polyculture:** Complex form of inter cropping in which a large number of different plants maturing at different times are planned together.
78. **Protoplast** is a plant, bacterial or fungal cell that had its cell wall completely or partially removed using either mechanical or enzymatic means.
79. **Rhizobium:** It is a symbiotic bacterium, and occurs in the root nodules of legumes. Rhizobium fixes atmospheric nitrogen in the presence of red pigment called leghaemoglobin. Rhizobium was first time isolated by Biejerinck in the year 1888.
80. **Salinity:** Amount of various salts dissolved in a given volume of water.
81. **Salinization:** Accumulation of salts in soil that can eventually make the soil unable to support plant growth.
82. **Scavenger:** Organism that feeds on dead organisms that were killed by other organisms or died naturally. Examples include vultures, flies, and crows.
83. **Strip cropping:** Planting regular crops and close-growing plants such as hay or nitrogen-fixing legumes in alternating rows or bands to help to reduce depletion of soil nutrients.
84. **Succulent plants:** Plants such as desert cacti that survive in dry climates by having no leaves, thus reducing the loss of scarce

- water. They store water and use sunlight to produce the food they need in the thick, fleshy tissue of their green stems and branches.
85. **Sustainable agriculture:** Agriculture and agrobased food system that are economically viable and meet society's need for safe and nutritious food while conserving or enhancing natural resources and the environment for sustainable life for future generations.
86. **Synecology:** The branch of ecology that deals with the structure and development of entire ecological communities and the interrelationship of the plants and animals with them. It is the study of entire ecosystem.
87. **Transgenic plants:** These are genetically modified plants which have been created by mobilizing genes of interest from one species to another species by means of biotechnology.
88. **Turnover number:** The number of molecules of substrate that a single molecule of enzyme can react with in a given unit of time.
89. **Virgin soil:** The soil, which has not been used for cultivation.
90. **Viruses:** Infectious disease causing agents, smaller than bacteria, which always require intact host cells for replication and which contain either DNA or RNA as their genetic component.
91. **Wetland:** Land that is covered all or part of the time with saltwater or freshwater, excluding streams, lakes, and the open ocean.
92. **Windrower:** A machine used for the purpose of crop harvesting.
93. **Xylan:** Polysaccharide found in the cell walls of plants, where it forms the bulk of the hemicelluloses component.
94. **Yellowing:** It is the result of diminishing rate of chlorophyll synthesis.
95. **Zeatin:** Naturally occurring cytokinin derived from adenine which plays a role in the growth and development of plants.

SOME FACTS ABOUT CENSUS

- ◆ 2011 Census in India is the 15th Census.
- ◆ The estimated global population in 2000 was 6055 million. World population is increasing 80 million per year and Asian population is 60.8% of total population of world.
- ◆ World population is increasing Approx. 80 million per year
- ◆ By 2050 India will most likely to over take China to become the most populous country on the earth.
- ◆ Largest Population of any country is that of China and lowest is that of Vatican City.
- ◆ Total Population of the Country India is 121 crore (2011 census)
- ◆ The first India census was conducted in the year 1872. However further census were not done on regular basis
- ◆ Nagaland led the states with lowest population growth rate of -0.47% whereas Meghalaya showed the highest growth rate at 27.82%.
- ◆ Least populous state is Sikkim- 6,07,688
- ◆ Most populous state—Uttar Pradesh- 19,95,81,477
- ◆ Kerala is the state with highest women Population rate (1084 females/1000 males)
- ◆ Urban population of India has increased from 25.85 million in 1991 to 377.10% million 2011.
- ◆ State with lowest women population is Haryana 877/females/1000 males.
- ◆ State with lowest birth rate Kerala— 19.8/1000 person
- ◆ State with highest birth rate UP— 97/1000 person
- ◆ State with lowest death rate Kerala— 5.9/1000 person
- ◆ State with highest death rate Madhya Pradesh — 12.8/1000 person
- ◆ Least densely populated UT Andaman and Nicobar Islands (46 person/km²)
- ◆ Least densely populated state is Arunachal Pradesh (17 person/km²)
- ◆ 2001-2011 has registered sharpest decline since independence for 2001-2011 decadal growth has become 17.64% a decrease of 3.9% from last decade.
- ◆ Thane district in Maharashtra is most populated district (11054131)
- ◆ Puducherry has highest sex ratio of 1176 females per 1000 males

◆ Total agricultural labourers:	14,43,29,833
Rural :	1,19,42,619
Urban:	63,88,688
Males:	8,27,40,351
Females:	6,15,89,482
◆ Total cultivators :	11,86,93,640
Males:	8,27,06,724
Females :	3,59,85,916

CENSUS (2011) AT A GLANCE

Population	1,21,05,69,573	(Male: 62,31,21,843) (Female: 58,74,47,730)
Sex Ratio (per 1000 men)	940	
Literacy rate (%)	74.04	
Male Literacy (%)	82.14	
Female Literacy (%)	65.46	
Population Density	382/km ²	
Highest Population Density State (Bihar.)	1102/km ²	
Lowest Population Density State (Arunachal Pradesh)	17 persons/km ²	
Highest Population Density, Union Territory. (Delhi)	11,297/km ²	
Decadal growth (%)	17.84%	
Annual Growth (%)	-3.9 %	
Lowest Literacy	Bihar (47.0%)	
Highest Literacy	Kerala (90.9%)	

STATES WITH THE HIGHEST POPULATION (CENSUS 2011)

Rank	State	Area (1000 km ²)	Population
1.	Uttar Pradesh	243.3	19,95,81,477
2.	Maharashtra	307.7	11,23,72,972
3.	Bihar	94.1	10,38,04,637
4.	West Bengal	88.8	9,13,47,736
5.	Andhra Pradesh	275.608	8,46,65,533
6.	Madhya Pradesh	308.0	7,25,97,565
7.	Tamil Nadu	130.1	7,21,38,958
8.	Rajasthan	342.2	6,86,21,012
9.	Karnataka	191.8	6,11,30,704
10.	Gujarat	196.0	6,03,83,628

STATES 1ST IN PRODUCTION OF VARIOUS CROPS IN INDIA

Crop	States
Rice	West Bengal > U.P.
Wheat	Uttar Pradesh > Punjab
Jowar	Maharashtra
Maize	Andhra Pradesh > Karnataka
Pulses	Madhya Pradesh > Rajasthan
Oil Seeds	Uttar Pradesh > Andhra Pradesh
Gram	Madhya Pradesh
Ground nut	Andhra Pradesh > Gujrat
Rapeseed and Mustard	Rajasthan
Sugarcane	Uttar Pradesh > Maharashtra
Cotton	Gujrat > Maharashtra
Tobacco	Andhra Pradesh
Rubber	Kerala
Pototo	Uttar Pradesh
Onion	Maharastra
Sorghum	Maharastra
Pearl millet	Rajasthan
Pigeon Pea	Maharashtra
Mustard	Rajasthan
Cereals	UP.
Soybean	M.P.
Jute	West Bengal

IMPORTANT ABBREVIATIONS

ADB	Asian Development Bank
AFC	Agricultural Finance Corporation
AIC	Agricultural Insurance Company of India Ltd.
APEDA	Agriculture and Processed Food Products Export Dev. Authority
AGMARK	Agricultural Produce Grading and Marketing
AICRP	All India Coordinated Research Project
AKIS	Agriculture Knowledge and Information System
AMA	Agricultural Co-Marketing Advisor
APC	Agricultural Price Commission
APHNET	Animal Production and Health Informatics Network
ARDC	Agriculture Refinance and Development Corporation
ARYA	Attracting and Retaining Youth in Agriculture
AEC	Atomic Energy Commission
ARS	Agricultural Research Services
ARYA	Attracting and Retaining Youth in Agriculture
ARISNET	Agricultural Research Information System Network
ATMA	Agricultural Technology Management Agency
Bt	<i>Bacillus thuringiensis</i>
BMC	Bulk Milk Cooler
BOD	Biological Oxygen Demand
CAD	Command Area Development
CAPART	Council for Advancement of Peoples Actions and Rural Technology
CACP	Commission for Agricultural Costs & Prices
CASE	Commission on Alternative Sources of Energy
CBA	Capture Based Aquaculture
CB	Co-operative Bank
CCI	Cotton Corporation of India
CDD	Cattle and Dairy Development
CDP	Community Development Programme
CeRA	Consortium for e-Resources in Agriculture
CFDO	Central Fodder Development Organization
CFSPF	Central Fodder Seed Production Farm

CGIAR	Consultative Group of International Agricultural Research
CITES	Convention on International Trade in Endangered Species
CMTF	Central Minikit Testing Programme
CSC	Central Seed Committee
CSO	Central Statistical Organisation
CWWG	Crop Weather Watch Group
DAC	Department of Agriculture and Cooperation
DADF	Department of Animal Husbandry, Dairying & Fisheries
DARE	Department of Agricultural Research and Extension
DDP	Desert Development Programme
DDT	Dichloro-Diphenyl-Trichloroethane
DNA	Deoxyribo Nucleic Acid
DMI	Directorate of Marketing and Inspection, Faridabad
DPAP	Drought Prone Area Programme
DRM	Disaster Risk Management
EBRD	European Bank for Reconstruction and Development
EDP	Entrepreneurship Development Programmes
EPA	Eicosapetaenoic Acid / Environmental Protection Agency
EDP	Electronic Data Processing
EEC	European Economic Community
FAO	Food and Agricultural Organisation
FTC	Farmers Training Centre
FCI	Food Corporation of India
FSS	Farmers Service Society
FYM	Farm Yard Manure
FYP	Five Year Plan
GAPs	Good Agricultural Practices
GDP	Gross Domestic Product
GHGs	Green House Gases
GIS	Geographic Information System
GNP	Gross National Product

GPS	Global Positioning System
G-8	Group of Eight (Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom and United States)
HAD	Hill Area Development Programme
HYVP	High Yielding Varieties Programme
IAAP	Intensive Agricultural Area Programme
IADA	Intensive Agricultural District Programme
ICDP	Intensive Cattle Development Programme
ICRISAT	International Crop Research Institute for Semi Arid and Tropics, Hyderabad
ICT	Information and Communication Technology
IDAD	Integrated Dryland Agricultural Development
IDBI	Industrial Development Bank of India
IFAD	International Fund for Agriculture Development
ICRAF	International Council for Research in Agroforestry
IFOAM	International Federation of Organic Agriculture Movement
IFS	Integrated Farming System
IFFCO	Indian Farmers Fertilizer Co-operative Ltd.
IMF	International Monetary Fund
IODP	Intensive Oil Seed Development Programme
IPM	Integrated Pest Management
ISO	International Standards Organisation
IPCC	Intergovernmental Panel on Climate Change
IPGRI	International Plant Genetic Resource Institute, Rome, Italy
IPR	Intellectual Property Rights
IRDP	Integrated Rural Development Programme
IUCN	International Union for Conservation of Nature and Natural Resources
IVLP	Institute Village Link Programme
JRY	Jawahar Rozgar Yojana
KCC	Kissan Call Centre
KCCS	Kishan Credit Card Scheme
KVK	Krishi Vigyan Kendra
LBS	Lead Bank Scheme
LDB	Land Development Bank

LISNET	Land Information System Network
MFAL	Marginal Farmers and Agricultural Labour Programme
MCP	Multiple Cropping Programme
MMT	Mean Monthly Temperature
MNAIS	Modified National Agricultural Insurance Scheme (2010)
MSP	Minimum Support Price/Minimum Standard Protocol
MSY	Mahila Samridhi Yojana
NABARD	National Bank for Agriculture and Rural Development
NADAMS	National Agriculture Drought Advisory and Management Systems
NAEP	National Agriculture Extension Project
NAFED	National Agriculture Co-operative Marketing Federation
NAARM	National Academy of Agricultural Research Management
NADRS	National Animal Disease Reporting System
NAFED	National Agricultural Cooperative Marketing Federation
NAIP	National Agricultural Innovative Project
NAIS	National Agricultural Insurance Scheme
NAMA	Non Agricultural Market Access
NAPCC	National Action Plan on Climate Change
NASA	National Aeronautics & Space Administration (USA)
NSAP	National Social Assistance Programme
NBAGR	National Bureau of Animal Genetic Resources
NBSSLUP	National Bureau of Soil Survey and Land Use Planning
NCA	National Commission on Agriculture
NCAER	National Council for Agricultural Economics and Research.
NCAP	National Centre for Agricultural Planning.
NCDC	National Co-operative Development Corporation
NCF	National Commission on Farmers
NCIPM	National Center for Integrated Pest Management
NDDB	National Dairy Development Board

NHB	National Horticulture Board
NIC	National Informatics Centre
NIN	National Institute of Nutrition
NISAGENET:	National Information System on Agricultural Education Network in India
NES	National Extension Service
NFSM	National Food Security Mission.
NHM	National Horticulture Mission.
NIAM	National Institute of Agricultural Marketing National Institute of Agricultural Management
NIPGR	National Institute of Plant Genome Research New Delhi
NITI	National Institute for Transforming India.
NOAA	National Oceanic & Atmospheric Administration (USA).
NOVOD	National Oilseeds and Vegetable Oils Development Board.
NRDWP	National Rural Drinking Water Supply Programme
NREGA	(Mahatma Gandhi) National Rural Employment Guarantee Act
NSC	National Seed Corporation
NSRTC	National Seeds Research and Training Centre
OECD	Organization for Economic Cooperation and Development
OPDP	Oil Palm Development Programme
PD	Poultry Development
PDS	Public Distribution System
PPV&FR	Protection of Plant Varieties and Farmers' Rights
PPTD	Pilot Project for Tribal Development
PQSs	Plant Quarantine Stations
PRAP	Participatory Action Research Programme
PRA	Participatory Rural Appraisal
PURA	Provision of Urban Amenities in Rural Areas
RKVY	Rashtriya Krishi Vikas Yojana

RADP	Rainfed Area Development Programme
READY	Rural and Entrepreneurship Awareness Development Yojana
RLEGP	Rural Landless Employment Guarantee Programme
RMK	Rashtriya Mahila Kosh
RRB	Regional Rural Banks
RUCHI	Rural Centre for Human Interests
SAARC	South Asian Association for Regional Cooperation
SDGs	Sustainable Development Goals (United Nations)
SFAC	Small Farmers Agri-Business Consortium
SFDA	Small Farmers Development Agency
SGSY	Swaran Jyanti Gram Swarajgar Yojana
SMS	Short Message Service
SRI	System of Rice Intensification.
TAD	Tribal Area Development
TERI	Tata Energy Research Institute
TTC	Trainer's Training Centre
TRIFED	Tribal Co-operative Marketing Federation of India
TRYSEM	Training of Rural Youth for Self Employment
UTI	Unit Trust of India
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFPA	United Nations Fund for Population Activities
USDA	United States Department of Agriculture
VAT	Value Added Tax
VOIP	Voice Over Internet Protocol
WADA	World Anti-Doping Agency
WBCIS	Weather Based Crop Insurance Scheme
WEF	World Economic Forum
WFC	World Food Council
WFP	World Food Programme
WVDP	Whole Village Development Programme
WHO	World Health Organization
WTO	World Trade Organisation
ZSI	Zoological Survey of India

SOME INSTRUMENTS AND THEIR USES

Altimeter	: Height above sea level
Aneroid Barometer	: Atmospheric Pressure
Albometer	: Solar radiation
Assmann's psychrometer	: Relative humidity in plant canopy
Crescograph	: Growth of Plant
Barograph	: Measurement of wind
Beaufort's scale	: Estimation of wind speed
Lysimeter	: Evapo transpiration
Portable evaporimeter	: Measuring evaporation for short period
Hygrometer	: Relative humidity continuously
Sunshine recorder	: Number of hours of sunshine per day
Pycnometer	: Density of soil
Psychrometer	: Relative humidity
Pyranometer	: Solar radiation
Pygeometer	: Incoming long wave radiation
Net radiometer	: Net radiation
Infrared thermometer	: Soil surface temperature
Quantum sensor	: PAR
Tensiometer (Surface tension)	: Surface tension of liquids
Tensiometer (Soil)	: Matric water potential
Saccharimeter	: Concentration of sugar solution.
Seismograph	: Intensity of earthquake
Venturimeter	: Rate of flow of liquids
Viscometer	: Viscosity of liquid

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IMPORTANT/SIGNIFICANT DAYS

National Youth Day (Swami Vivekanand)	January, 12
National Tourism Day	January, 25
Indian Republic Day	January, 26
World Wetland Day	February, 2
World Cancer Day	February, 4
National Science Day	February, 28
International Women's Day	March, 8
World Kidney Day	March, 10
World Consumer Rights Day	March, 15
Water Resources Day	March, 11
World Consumer Day	March, 15
World Forestry Day	March, 21
World Day for Watch	March, 22
World Water Day	March, 22
World Meteorological Day	March, 23
World Health Day	April, 7
Earth Day	April, 22
Workers Day (Int. Labour Day)	May, 1
World Red Cross Day	May, 8
National Technology Day	May, 11
Commonwealth Day	May, 24
World Environment Day	June, 5
International Yoga Day	June, 21
World Zoonoses Day	July, 6
World Mango Day	July, 7
World Population Day	July, 11
NABARD Foundation Day	July, 12
ICAR Foundation Day	July, 16
Hiroshima Day	August, 6

India's Independence Day	August, 15
National Sports Day	August, 29
World Coconut Day	September, 2
Teacher's Day	September, 5
World Literacy Day	September, 8
Hindi Diwas	September, 14
Ozone Day	September, 16
World Biosphere Day	September, 31
World Tourism Day	September, 27
World Animal Welfare Day	October, 4
Post Office Day	October, 9
U.N. Int. Day for Natural Disaster Reduction	October, 13
World Food Day	October, 16
World Fruits and Vegetables Day	October, 18
United Nations Day	October, 24
National Integration Day	November, 9
Children' Day/World Diabetes Day	November, 14
World Environment Protection Day	November, 26
World Aids Prevention Day	December, 1
World Disability Day	December, 3
Chemical Disaster Prevention Day/Indian Navy Day	December, 4
Girl, Child Day (SAARC)	December, 9
Int. Human Rights Day	December, 10
National Energy Conservation Day	December, 14
Minorities Right Day	December, 18
Agriculture Women's Day	December, 4
Farmer's Day (Kisan. Divas) (Birthday of Ch. Charan Singh)	December, 23

IMPORTANT YEARS FOR INDIAN AGRICULTURE

1. Indian Meteorological Department established	1875
2. First Department of Agriculture established	1881
3. Forest Research Institute at Dehradun	1900
4. First Tractor bought for Agriculture use	1914
5. Destructive Insect and Pests Act passed	1914
6. Royal Commission on Agriculture	1928
7. Great Bengal famine caused by <i>Helminthosporium oryzae</i>	1943
8. Planning Commission Established	1950
9. Indian Institute of Sugarcane Established at Lucknow	1952
10. Indian Society of Agronomy	1955
11. First Five Year Plan started	1951+1956
12. CDP (Community Development Project) started	1952
13. National Extension Service	1953
14. T.V. Broadcast for Rural Development started	1957
15. Panchayati Raj started	1957-58
16. NAFED (National Agricultural Cooperative Marketing Federation)	1958
17. Doordarshan Services Inaugurated by the President	1959
18. First Agricultural University established at Pantnagar	1960
19. Intensive Agriculture District Programme started	1960
20. National Seed Corporation Founded at Delhi	1963
21. Intensive Agriculture Area Programme started	1964
22. Food Corporation of India	1965
23. Agriculture Price Commission constituted	1965
24. Krishi Darshan Programme Inaugurated	1967
25. High yielding varieties Programme started	1966
26. Insecticides Act passed	1968
27. Green Revolution started	1969
28. National Commission on Agriculture setup by GOI	1970
29. Accelerated Rural Water Supply Schemes	1972
30. Agriculture Research Services started	1973
31. Small Farmer Dev. Agency started	1974
32. First KVK established in Tamilnadu Agricultural University, Pondicherry	1974
33. Command Area Development Authority	1974
34. Regional Rural Banks Established	1975
35. NAARM (National Academy of Agricultural Research Management) established	1976

36. NBPGR (National Bureau of Plant Genetic Resources) established	1976
37. NDC (National Data Centre) created at IMD Pune	1977
38. Farmer's Agriculture Service centres	1983-84
39. MANAGE (National Institute of Agricultural Extension Management) established at Hyderabad	1987
40. IRDP (Integrated Rural Dev. Programme) started	1980
41. National Bank for Agriculture and Rural Development	1982
42. Crop Insurance scheme was started	1985
43. TRIFED (Tribal Co-operative Marketing Dev. Federation of India Ltd.	1987
44. NAAS (National Academy of Agri. Sciences) established	1990
45. Agriculture Research Information Systems Established	1995
46. National Social Assistance Programme	1995
47. National Gene Bank established at New Delhi	1996
48. Village Grain Bank Scheme started	1996-97
49. Indian Agriculture Started on line by Ministry of Agriculture	1997
50. Indian Standard Institute established	1997
51. Kisan Credit Card Scheme started	1998
52. National Agriculture Insurance Scheme started	1999
53. National Agriculture Technology Project (NATP)	1999
54. Macro-management of Agriculture (Central Govt.) Scheme started	2000-2001
55. Agricultural Technology Management Agency (ATMA)	2000
56. India's First Biotech Crop. technology approved for commercialization	2002
57. Biodiversity Act Passed	2002
58. Intensive Cotton Development Programme	2003-04
59. National Rural Health Mission	April 2005
60. National Floriculture Mission started	2006
61. National Agricultural Innovation Project (NAIP)	2006
62. National Bamboo Mission	2006-07
63. National Food Security Mission	2007-08
64. Rashtriya Krishi Vikas Yojana	2007-2008
65. Food Security and quality year	2008-09
66. Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)	2. Oct., 2009
67. National Mission for Sustainable Agriculture launched	2011-12
68. Milk Mission Funded by IDA and GOI	2012

Range of pH for Different Crops	
Crop	pH range (optimum)
Paddy	5.0 - 6.5
Sorghum	5.5 - 7.5
Maize	5.5 - 7.5
Wheat	4.5 - 6.5
Barley	6.5 - 8.0
Rye	5.0 - 7.0
Oats	5.0 - 7.5
<i>Leguminous crops</i>	
Chickpea	6.0 - 7.5
Pea	6.0 - 7.5
Field beans	6.0 - 7.5
Lima beans	6.0 - 7.0
Velvet beans	5.5 - 7.0
Soybean	6.0 - 7.0
Groundnut	5.3 - 6.6
Pigeonpea	5.5 - 7.0
Cowpea	5.0 - 7.0
Lucerne	6.2 - 7.5
Berseem	6.0 - 7.5
Red clover and White clover	5.7 - 7.0
Lupine	5.5 - 6.5
<i>Other crops:</i>	
Cotton	6.0 - 7.5
Sugarcane	6.0 - 8.0
Tobacco	5.5 - 7.5
Potato	5.0 - 5.5
Cabbage	5.0 - 7.0
Redbeet and Sugarbeet	6.5 - 8.0
Sunflower	6.0 - 7.5
Linseed	5.0 - 7.0
Strawberries	4.8 - 5.8
Blue grass	5.2 - 6.5
Turnip	5.5 - 6.8
Sweet potato	5.8 - 6.0

Critical Growth Stages of Different Crops for Irrigation

Crop	Critical stages
Cereals:	
<i>Khariif</i>	
Rice	Tiller initiation, panicle initiation, heading, flowering
Sorghum	Seedling, pre-flowering, flowering, milky, dough stage
Maize	Seedling, tasseling, silking, dough stage
Pearlmillet	Maximum tillering, flowering, grain development
Fingermillet	Panicle initiation, flowering, grain development
Minor millets	Maximum tillering, flowering, grain development
<i>Rabi</i>	
Wheat	Crown root initiation, late tillering, late jointing, boot/flag leaf, flowering, milky stage, dough stage Active tillering, flag leaf/booting, grain filling
Barley	Active tillering, ear emergence, grain filling
Oat	Active tillering, ear emergence, grain filling
Grain Legumes:	
<i>Khariif</i>	
Pigeonpea	Flower initiation, flowering, pod filling
Urdbean	Pre-flowering, pod development (filling)
Mungbean	Pre-flowering, pod filling (development)
Cowpea	Pre-flowering, pod development
Clusterbean	Pre-flowering, pod development
Soybean	Vegetative phase, flowering, pod filling
<i>Rabi</i>	
Chickpea	Branching, pre-flowering, seed development
Fieldpea	Flower initiation, pod development
Lentil	Branching, flowering, pod development
Horsegram	Flowering, grain development

Oilseed crops

<i>Khariif</i>	
Groundnut	Flowering, pegging, pod development
Seasame	Flower initiation, capsule (pod) formation
Castor	First or second or third spike development
<i>Rabi</i>	
Rape & mustard	Branching, flowering (general)
Rape & mustard	Pre-flowering, silique filling
Sunflower	Buttoning, flowering, seed setting, seed development
Safflower	Elongation, branching, flowering, grain filling
Linseed	Pre-flowering, Pod filling
<i>Toria</i>	rosette, pod formation
Rocket salad	rosette, pod formation
Potato	Stolonization, tuberization, bulking,
Tomato	Flowering, fruit development, Fruit ripening
Onion	Bulb formation, bulb enlargement
Cauliflower	Seedling stage, curd growth
Cabbage	Head formation, head enlargement
Carrot	Root initiation, bulking (enlargement)
Radish	Root formation, bulking
Turnip	Root initiation, root enlargement
Broccoli	Seedling, curd growth, branching
Sweet potato	Seedling, leaf development, root enlargement
Commercial and other crops:	
Sugarcane	Emergence, tillering, elongation
Tobacco	Complete growth period especially topping
Cotton	Sympodial branching, flowering, Boll development
Citrus	Flowering, fruit setting fruit growth
Banana	Early vegetative phase, flowering, fruit formation
Sugarbeet	Formative, leaf development, root development

Water Requirement of Crops

<i>Crop</i>	<i>Water requirement (mm)</i>
Cereals and millets:	
Rice	600-4000
Light soils	2000-2500
Medium soils	1500-2000
Heavy soils	1000-1500
Medium to heavy soils	1600
Sorghum <i>rabi</i>	450-650
<i>kharif</i>	300-450
Maize	500-800
Pearlmillet <i>rabi</i>	400-350
<i>kharif</i>	150-200
Fingermillet	450-500
Italian millet	250-300
Minor millets	200-300
Wheat	250-600
Northern India	250-400
Central India	500-600
Barley	250-600
Oat Grain	250-600
Fodder	350-600
Triticale	250-400
Grain legumes:	
Pigeonpea	300-350
Cowpea	250-300
Mungbean	150-250
Urdbean	200-250
Soybean	450-700
Clusterbean	200-250
Chickpea	250-300
Fieldpea	350-500
Lentil	150-200

Oilseed crops:	
Groundnut	500-700
Sesame	300-350
Castor	500-550
Rapeseed-mustard	300-350
<i>Toria</i>	200-250
Rocket salad	150-200
Safflower	200-250
Sunflower	350-400
Linseed	350-500
Miscellaneous	250-1500
Sorghum (Fodder)	450-650
Berseem	800-900
Lucerne	1800-2000
Vegetable crops	
Tomato	600-950
Potato	500-700
Cabbage	300-500
Radish	230-300
Turnip	250-300
Carrot	225-300
Beet root	330-350
Onion	350-550
Garlic	300-500
Commercial crops:	
Cotton	500-1300
Jute	500-600
Tobacco	400-600
Sugarcane	1500-2500
Andhra Pradesh	1600-1700
Bihar	1400-1500
Karnataka	2000-2300
Maharashtra	2800-3000
Punjab and Haryana	1700-1800
Uttar Pradesh	1800-2000
Sugarbeet	800-1000

VARIOUS ACTS IN AGRICULTURE

- 1950 : Agriculture Pest and Disease Act
 1954 : Prevention of Food Adulteration Act
 1955 : Essential Commodities Act
 1956 : Food products order Act
 1966 : Asian Development Bank Act
 1966 : Indian Seeds Act
 1967 : Vegetable Oil Product Act
 1968 : Insecticides Act
 1972 : Agriculture Produce Market Act
 1973 : Meat Food Products Order
 1975 : Vegetable Oil Product (standard of quality) Order
 1976 : Regional Rural Banks Act
 1976 : National Commission on Agriculture Act
 1982 : Sugar Development Fund Act
 1986 : Consumer Protection Act
 1987 : Dairy Development Board Act
 1992 : Central Agricultural Universities Act
 1992 : Destructive Insects and Pests (Amendment and Validation) Act
 2001 : Farmers Rights Act
 2002 : Biodiversity Act
 2002 : Agricultural Employees Protection Act
 2005 : Mahatma Gandhi National Rural Employment Guarantee Act
 2005 : Right to Information Act
 2006 : Agriculture Produce Markets (Amendments) Act
 2013 : National Food Security Act.

COMPOSITION OF AIR

Components	Concentration (ppm by volume)
Nitrogen (N ₂)	78.009
Oxygen (O ₂)	20.95
Argon (Ar)	0.93
Water vapour (H ₂ O)	—
Carbon dioxide (CO ₂)	0.032
Neon (Ne)	0.0018
Krypton (Kr)	0.0001
Methane (CH ₄)	0.00015
Helium (He)	0.00052
Ozone (O ₃)	0.000002
Xenon (Xe)	0.000008
Nitrous dioxide (N ₂ O)	0.00002
Carbon monoxide (CO)	0.00001
Hydrogen (H ₂)	0.00005
Ammonia (NH ₃)	0.0000006
Nitrogen dioxide (NO ₂)	0.0000001
Nitric oxide (NO)	0.00000006
Sulphur dioxide (SO ₂)	0.00000002
Hydrogen sulphide (H ₂ S)	0.00000002

ATMOSPHERE

(Altitude and temperature range)

Region	Altitude range (k.m.)	Temperature (°C)	Important chemical species
Troposphere	0-11	15 to -56	N ₂ , O ₂ , H ₂ O (Vapour), CO ₂
Stratosphere	11-50	-56 to -2	O ₃
Mesosphere	50-85	-2 to -92	O ⁺ , NO ⁺

Lower layer of atmosphere where chemical composition of air is uniform- *Homosphere*.

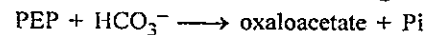
Highest layer of atmosphere where chemical composition changes- *Heterosphere*:

DIFFERENCES BETWEEN C₃ AND C₄ PLANTS

Characteristics	C ₃ plants	C ₄ plants
Leaf Anatomy	No distinct bundle sheath of photosynthetic cells	Well-organized bundle sheath, rich in chloroplasts
Enzyme (Carboxylating)	Rubisco	Phosphoenolpyruvate (PEP) carboxylase, followed by Rubisco
Transpiration ratio (kg H ₂ O per kg dry matter produced)	450-950	250-350
Photorespiration	Yes	No
Optimum temperature for photosynthesis	(15-25°C)	(30-47°C)
Minimum ppm	30-70	0-10
CO ₂ required for photosynthesis		

Salisbury and Ross (1992)

Phosphoenolpyruvate carboxylase (also known as *PEP carboxylase*) is an enzyme in the family of carboxy-lyases found in plants and some bacteria that catalyzes the addition of bicarbonate (HCO₃⁻) to phosphoenolpyruvate (PEP) to form the four-carbon compound oxaloacetate and inorganic phosphate.



This reaction is used for carbon fixation in CAM and C₄ organisms, as well as to regulate flux through the citric acid cycle (also known as Krebs or TCA cycle) in bacteria and plants.

ESSENTIAL MACRONUTRIENTS ELEMENTS AND ROLE IN PLANTS

Element	Role/Functions	Conc. in Tissue (dry weight) %
1. Carbon (C)	Basic molecular component of proteins, carbohydrates, and lipids etc.	45.0%
2. Hydrogen (H)	Plays a key role in plant metabolism	6.0%
3. Oxygen (O ₂)	Occurs in all organic compounds required for growth and development of plants	1.5%
4. Nitrogen (N)	Constituent of all proteins, chlorophyll, and in coenzymes, and nuclei acids.	1.5%

5. Phosphorous (P)	Important in energy transfer as part of adenosine triphosphate. Constituent of many proteins, coenzymes, nuclei acids, and metabolic substrates	0.2%
6. Potassium (K)	Hexokinase	1.0%
7. Calcium (Ca)	Cell wall component. Plays role in the structure and permeability of membranes.	0.5%
8. Magnesium (Mg)	Constituent of chlorophyll and enzyme activator.	0.2%
9. Sulfur (S)	Important constituent of plant proteins.	0.1%

Essential Micronutrient Elements and Their Role in Plants

		ppm
10. Boron (B)	Somewhat uncertain, but believed important in sugar translocation and carbohydrate metabolism.	20
11. Iron (Fe)	Chlorophyll synthesis and in enzymes for electron transfer	100
12. Manganese (Mn)	Controls several oxidation-reduction systems, formation of O ₂ in photosynthesis	50
13. Copper (Cu)	Catalyst for respiration, enzyme constituent.	6
14. Zinc (Zn)	In enzyme systems that regulate various metabolic activities	20
15. Molybdenum (Mo)	In nitrogenase needed for nitrogen fixation.	0.1
16. Chlorine (Cl)	Activates system for production of O ₂ in photosynthesis	100
17. Nickel (Ni)	Deficiency produces an array of effects on growth and metabolism of plants, including reduced growth, and induction of senescence, leaf, and meristem chlorosis, alternations in N metabolism, and reduced Fe uptake.	0.5

Other Elements Needed Sometimes

1. Sodium (Na), 2. Silicon (Si), 3. Cobalt (Co), 4. Vanadium (V)

WELFARE PROGRAMMES & SCHEMES IN 2014-15

1. Swachh Bharat Abhiyan: A national campaign by Indian Government launched officially on 2nd Oct., 2014 at Rajghat by Prime Minister Narendra Modi. India's biggest cleanliness drive covering 4,041 towns, to clean the streets, roads and infrastructure of the country. This campaign aims to achieve vision of clean India by 2nd Oct. 2019. (150th Birth Day of Mahatma Gandhi).

2. Sansad Adarsh Gram Yojana: Launched by Prime Minister of India Sh. Narendra Modi on birth anniversary of Jayprakash Narayan on 11th Oct. 2014. It is rural development programme focusing upon the development of people of the village. This programme also initiated to bring MP (Member of Parliament) of all the political parties under the same roof for taking the responsibility of developing physical and institutional infrastructure in villages and turn them in to model villages. Each MP has to choose one village in his/her constituency that they represent, fix parameters and make it a model village.

3. Pradhan Mantri Jan Dhan Yojana: This scheme launched by Prime Minister Sh. Narendra Modi on 28th August 2014. It is a scheme for comprehensive financial inclusion run by department of Financial Services Ministry of Finance. Scheme is started with target to provide universal access to banking facilities starting with Basic Banking Accounts with Overdraft facility of Rs. 5,000 after 6 months and Rupay debit card with inbuilt accident cover of Rs. 1 lakh and Rupay Kisan Credit Card. In the next phase, micro-insurance pension etc. will also be added. On the inauguration day 1.5 crore bank accounts were opened and around Rs. 10,590 crores were developed under this scheme. This scheme launched completes one year on 28th August 2015 with 174.5 million accounts and a total deposit of Rs. 20,769.33 crore.

4. Pradhan Mantri Suraksha Bima Yojana: It is a low-cost personal accident cover to increase the insurance penetration level for poor in the country. Scheme was announced by Finance

Minister in budget 2015-2016. This insurance policy covers death or disablement of the policy holder caused due to accident or any accidental injuries. This insurance cover is available for a premium of just Rs. 12 per year to people in the age group of 18-70 years. The scheme is offered by all public sector general insurance companies. This scheme ensures social security through convenient modes like auto debit facility.

5. Pradhan Mantri Jeevan Jyoti Bima Yojana: The scheme will be a one year cover, renewable from year to year. Insurance Scheme offering life insurance cover for death due to any reason.

Scope of coverage: All savings bank account holders in the age 18 to 50 years in Bank will be entitled to join. In case of multiple saving bank accounts held by an individual in one or different banks, the person would be eligible to join the scheme through one saving bank account only.

Benefits: Rs. 2 lakhs is payable on members death due to any reason. If the scheme member dies during insurable membership, subject to policy being in force and all due premiums, Service Tax and other levies (if any) having been paid and subject to any restrictions or qualifications referred to in these Clauses, the amount specified as the Sum Assured for such Scheme Member shall become due to the Nominee of the Scheme Member. No maturity benefit is payable under the policy. No surrender benefit is payable under the policy.

6. Pradhan Mantri Krishi Sinchai Yojana: Rs. 5,300 crores allotted to carryout micro-irrigation and watershed development.

7. Nai Manzil: A scheme launched by Dr. Najma Heptullah, Union Minister for minorities helping minority youth without a formal school-leaving certificate to obtain one and find better employment opportunities.

8. Soil Health Card Scheme: Prime Minister Narendra Modi launched 'Soil Health Card Scheme' for 14 crore farmers to check the excess use of fertilizer in Agriculture in India on 19th Feb. 2015. Under this scheme card will be issued for testing of

soil and the estimated savings for the farmers with land holding of 3 acres shall be about Rs. 50,000 annually by adopting recommendation of crop-wise fertilizer requirement and reduction in amount and quality of fertilizer usage for crop production.

9. Shyama Prasad Mukherjee Urban Mission for integrated project based infrastructure in rural areas of the country. Mission aims to create 300 Urban growth clusters over the next 3 years.

10. Deen Dayal Upadhaya Gram Jyoti Yojna for feeder separation to augment power supply to Rural areas.

11. Pradhan Mantri Gram Sishai Yojna to provide per drop more crops.

“U.N.O. has declared 2016 as International Year of Pulses”

BUDGET 2016

Highlights for Agriculture

- * Allocation for Agriculture and Farmer's welfare amounting to Rs. 35,984 crores.
- * For Agriculture total credit will be Rs. 9 lakh crores.
- * For MNREGA total outlay will be 38.5 thousand crores.
- * 2.87 lakh crores are allotted for Rural Panchayats.
- * To speed-up Rural Electrification Rs. 8500 crores are allotted.
- * A new digital literacy scheme for Rural India.
- * By 2022 income of farmers will be doubled.
- * A cess 0.5% for Agriculture Welfare shall be levied.
- * Tanks and water reservoirs shall be re-generated for benefit of farmers.
- * Prime Minister Agricultural Crop Insurance Scheme will get Rs.5500 crore rupees.
- * 28.5 lakh hectare land will come under Irrigation program.
- * In next five years Rs. 86,500 crores shall be spent for irrigation development.

- * NABARD shall create a fund for irrigation worth rupees 20,000 crores.
- * By 2017 all farmers to get soil health card and for Agricultural marketing they will get integrated marketing platforms.
- * New 5 lakh wells shall be created for water and irrigation in rural areas.
- * In 12 states E-Portal, 97 lakh tonnes storage facility will be created for better storage of crops.
- * Govt will invest Rs. 2.21 lakh crores for infrastructure and 1.23 lakh crores for villages and farmers.
- * For Farmer's welfare Rupees 35,894 crores shall be spent.
- * For better use of water resources Rs.6000 crores are allotted.
- * For helping farmers to repay loans in difficult situations Rs. 15000 crores are allotted towards interest subvention
- * Unified Agricultural Marketing e-platform to provide a common e-market platform for wholesale markets.
- * Rs. 850 crore earmarked for four dairy farming projects, 'Pashudhan Sanjivani', 'Nakul Swasthya Patra' E-Pashudhan Haat and National Genomic Centre for Indigenous Breeds
- * Growth of economy accelerated to 7.6% in 2015-16.
- * Pradhan Mantri Krishi Sinchai Yojana to be implemented in 'Mission Mode', 28.5 Lakh hectares will be brought under irrigation.
- * 5 Lakh Farm ponds and dry wells in rain fed areas and 10 lakh compost pit for production of organic manure will be taken up under MGNREGA
- * 2,000 model retail outlets of Fertilizer companies will be provided with soil and seed testing facilities during the next three years.

Genome editing (Process of altering the genome of an organism) step further

Genome Editing with Engineered Nucleases (GEEN) is an engineered process of altering the genome of an organism. In this process, DNA (Deoxyribonucleic acid) is inserted, deleted or replaced in a genome with engineered nucleases (also called molecular scissors). Genome is complete set of DNA of an organism. It includes all the genes.

DNA is cut at desired site of gene, called double-strand breaks (DSBs). These DSBs are repaired using different methods. Non-homologous end joining (NHEJ) and Homologous Recombination (HR) methods are generally used for reparation.

1. Mobile APP PUSA Krishi launched at Krishi Unnati MELA 2016. The App will provide with information about weather conditions to make farmer to take measures to save the crop and also give information related to new varieties of crops developed by ICAR, resource conserving cultivation practices as well as farm machinery and its implementation will help increasing returns to farmers. With the use of mobile app farmer can get easy solution to their problems. The Agricultural Ministry has developed this App and described it as an omnibus for quick and relevant information. But farmers must have smart phones to use this App. At present information is available in Hindi and English only, but Ministry is looking forward to add more languages to this APP to take it a step further.

2 Mobile App: Agri Market Mobile: Farmers can use this app to get the information about the market price of crops in nearby mandi within 50 km radius and also the mandi in the country. Allowing him to make right decision to sell his produce.

KISAN Crop Insurance using space Technology and geoinformatics to fasten payment of crop insurance claims to farmers.

The project envisages use of space technology and geoinformatics (GIS, GPS and smart phones) technology along with high resolution data from satellite UAV/Drone based imaging and other geospatial technology for improvement in yield estimation and better planning of crop cutting experiments (CCES), needed for crop insurance programme. There has been always a problem in getting timely and accurate data, due to which payment of claims to farmers was getting delayed. KISAN is launched to address this issue by providing timely data on crop yields

This project shall be implemented by Mahalanobis National Crop Forecast Centre (MNCFC) an attached office of Department of Agriculture, Co-operation and FW in collaboration with ISRO-Centres, IMO (India Meteorological departments State agricultural departments and state remote sensing centres.

SMAP: (Soil Moisture Active Passive)

NASA successfully launched its first earth observing satellite on 31st January 2015. Satellite can predict the severity of draughts world wide and help farmers to maximize crop yields. Satellite is built to measure moisture in top 2 inch (5cm) of soil from its spot in orbit about 426 miles (685 km) above earth surface, completing one orbit once every 98.5 minutes.

Satellite is on three year mission to track the amount of water locked in the soil, which may help farmers and residents living in low lying areas/regions brace for floods or to get ready for drought conditions.

Benefit of India: Underground water resources are hard to estimate, so farmers who rely on groundwater for those parts. SMAP measurements can help farmers to know the water resources and act accordingly.

The satellite is designed to measure the moisture of earth's dirt more accurately than ever before. The probe will make a global map of the planet's soil moisture levels every three days.

India's rice exports has touched the figure of 10.23 million tones and became the largest exporter of rice in the world.

Cardinal Temperature for the Germination of Seeds of Certain Crops

Crop	Cardinal temperature		(^o F)* Maximum
	Minimum	Optimum	
Rice	50-93	86-90	97-101
Maize	46-50	89-95	104-111
Sorghum	46-50	89-95	104
Wheat	39-40	77	86-90
Barley	39-40	68	82-86
Oats	39-41	77	86
Rye	34-36	77	86
Peas	34-36	86	95
Lentil	39-41	86	97
Sugarbeet	39-41	77	82-86
Carrot	39-41	77	86
Pumpkin	54	89-93	104
Melon	54-59	95	104
Alfalfa	34	86	99
Flax	35-37	77	86
Hemp	34-36	95	113
Vetch	34-36	86	95

$$* \frac{C}{100} = \frac{F - 32}{100} = \frac{K - 273}{100}$$

Recommended Optimum Moisture Content of Seed at Harvest of a Seed Crop

Crop	Moisture content per cent
Wheat and Barley	18-20
Rice	18-25
Maize	15-20
Sorghum and Pearl millet	25-30
Field pea	25
Soybean	20-25
Groundnut	30-40

Normal, Deficient and Toxic Levels of Supply of Essential Nutrient Elements

Nutrient	Concentration (ppm)		Toxic level
	Deficiency	Optimum	
Nitrogen	35-70	140-350	Growth depressed at 5-10 times concentration, that for the normal growth
Phosphorous	2-10	30-60	
Potassium	2-20	100-200	
Calcium	2-20	100-200	
Sulfur	1-10	25-50	
Magnesium	0.5-5	10-40	
Copper and Zinc	0.0001-0.005	0.05-1.0	
Iron	0.05-2.0	5-10	
Molybdenum	0.00001-0.00001	0.2-1.0	
Manganese	0.005-0.02	0.55-5.5	
Boron	0.0001-0.2	0.1-0.5	

Vascular Plants

Division	Class	English name	Group name	
Spermatophyta	Angiospermae (Covered seeds)	—	—	
	sub-class	—		
	Monocotyledoneae (one seed leaf)	Monocotyledons	} Flowering plants	
	Dicotyledoneae (Two seed leaves)	Dicotyledons		
	Conopsida (cone)	Conifers	} Gymnosperms	
	Ephedropsida (ephedra)	Ephedra		
	Gnetopsida (Gnetum)	Gnetum Welwitschia		
	Cycadopsida (cycad)	Cycads		
	Pteridophyta	Pterosida (feather)	Ferns	} Pteridophytes
	Sphenophyta	Sphenopsida (wedge)	Horsetails	
Lycophyta	Lycopsida (wolf)	Club mosses		
Psilophyta	Psilopsida (bareness)	Psilosium		

Table : Fruits, Their Kinds and Edible Parts

<i>Fruit</i>	<i>Kind</i>	<i>Edible part</i>
Apple	Pome	Fleshy thalamus
Banana	Berry	Mesocarp, endocarp
Cashewnut	Nut	Peduncle, cotyledons
Coconut palm	Fibrous drupe	Endosperm
Cucumber	Pepo	Mesocarp, endocarp, placenta
Custard apple	Berries	Fleshy pericarp
Date palm	Berry (single seeded)	Pericarp
Fig	Syconus	Fleshy receptacle
Jack	Sorosis	Bracts, perianth, seed
Grape	Berry	Pericarp, placenta
Guava	Berry	Thalamus, pericarp
Indian plum	Drupe	Mesocarp, epicarp
Litchi	Nut (single seeded)	Fleshy aril
Wheat, rice, Maize	Caryopsis	Starchy endosperm
Mango	Drupe	Mesocarp
Melon	Pepo	Mesocarp
Orange	Hesperidium	Juicy placental part
Palmyra palm	Fibrous drupe	Mesocarp
Papaya	Berry	Mesocarp
Pea	Legume or pod	Cotyledons
Pear	Pome	Fleshy thalamus
Pineapple	Sorosis	Bracts, perianth, outer receptacle
Pomegranate	Balausta	Juicy outer seedcoat
Pummelo or shaddock	Hesperidium	Juicy placental hair
Strawberry	Achenes	Succulent thalamus
Tomato	Berry	Pericarp and placenta
Woodapple	Amphisarca (special)	Inner endocarp and placenta

Agricultural Meteorology

Q. 1. Which was the first weather satellite

Ans: TIROS launched by United States in the 1960. It sent the first images from space of clouds moving around the Sun.

Q. 2. When was the first weather forecast made

Ans: In the year 1869 in USA

Q. 3. What is a barograph ?

Ans: It is an instrument that makes a continuous records of the changes in air pressure

Q. 4. What is an Ice bow ?

Ans: An Ice bow is a rainbow

Q. 5. What is a blizzard?

Ans: A blizzard is caused when a very strong wind combines with falling snow or whips it up from the ground. It may blow snow into deep drifts that can bury vehicles and buildings

Q. 6. Who first classified clouds ?

Ans. Metreologist Luke Howard in 1803

Q. 7. How many types of clouds are there ?

Ans: There are many different clouds but only 10 (Ten) are officially classified.

Q. 8. Cirrus clouds

Ans: These form at height above 6000m, it is so cold at that the water inside the clouds is frozen into crystals of ice. They have a feathery, wispy appearance and sometimes called "Mares Tails". A large number of cirrus clouds will occasionally form a complete layer of white clouds.

Q. 9. Cumulus Clouds

Ans: These form at different heights, although they are most often seen in the middle of the cloud layer. Fluffy in

appearance, cumulus clouds are often grey on the bottom and a very bright white at the top. Sometimes known as cauliflower clouds.

Q.10. Altocumulus clouds

Ans: These are small flattened cumulus compounds, grey or white in color. They may appear after a long period of hot weather, before a thunderstorm

Q.11. Stratus clouds

Ans: These form at the lowest levels of cloud layer 500 m (1600 ft) They form in layers that can build up across the whole sky. These clouds produce light rain and drizzle and in hilly areas will often produce wet fog and mist over the ground

Q.12. Altostratus

Ans: A thin watery sheet of grey clouds is altostratus clouds. Rain often follows its appearance

Q.13. Stratocumulus clouds

Ans: These are formed when a sheet of cumulus clouds that almost join together They are probably the most common type of cloud.

Q. 14. Cumulonimbus

Ans: These clouds are huge, flat topped clouds that often bring heavy storms, rain and thunder. Because of their shapes, they are sometimes called anvil clouds and may stretch to a very great height

Q.15. Cirrocumulus clouds

Ans: These are combination of cirrus and cumulus clouds They are rows of icy particles and indicate a period of unsettled weather

Q. 16. Nimbostratus clouds

Ans: These are very thick and grey. They bring rain or snow and block out the Sun completely.

ADDITIONAL QUESTIONS

Q. 1. Ground water table is measured by

Ans. Piezometer

Q. 2. C₄ plant normally produce more biological yield than C₃ plant because of:

Ans. Less photorespiration

Q. 3. Element most mobile in soil ?

Ans. Nitrogen

Q. 4. The IARI was established in the year

Ans. 1905

Q. 5. The present level of carbon-dioxide in atmosphere is

Ans. 295–400 ppm

Q. 6. Important constituent element of protoplasm

Ans. Calcium, iron, magnesium, chlorine, phosphorus, potassium and sulphur.

Q. 7. Criteria for the essentiality of nutrients for plants was given by

Ans. Arnon

Q. 8. The process of use of microorganism to remove salts from soil is referred as

Ans. Bioremediation

Q. 9. World Earth Day is celebrated on

Ans. March 22

Q. 10. The protoplasm contain water

Ans. About 67-75%

Q. 11. The outer layer of a seed is called

Ans. Testa

Q. 12. The CO₂ content of soil air is

Ans. 0.3 %

Q. 13. Solar constant is equal to (in cal/cm²/min)

Ans. 1.96/cal/cm²/min.

(It is measure of flux density. It is the average amount of solar radiation received by the earth's atmosphere per unit area. When the earth is at its mean distance from the Sun)

Q. 14. Which monsoon is the main cause of rainfall in India ?

Ans. South west monsoon

Q. 15. A plant which grows in full sun light is known as

Ans. Helophytes

Q. 16. The condition favourable when the ratio between Auxine : Cytokinin is less than one.

Ans. Shoot growth

Q. 17. Father of Tissue culture is

Ans. Haberlandt (Conceived the concept in 1902)

Q. 18. Leaf Area Index is computed as

Ans. Land area/ leaf area

Q. 19. Lime (CaCO₃) is added to reclaim _____.

Ans. Acid soil

Q. 20. The study of soil fertility with respect to crop is known as

Ans. Edopology

Q. 21. The system where water is available in sufficient quantity for crop growth may be called as

Ans. Mesophytic system

Q. 22. Hill reaction occurs in:

Ans. Presence of ferricyanide

Q. 23. Cu excess indicator plant is _____.

Ans. Sugarbeet

Q. 24. Mycorrhizae is the association of?

Ans. Higher plants & fungi

Q. 25. In which year, the Protection of Plant Varieties and Farmers' Right Act commenced ?

Ans. 2001

Q. 26. Crossing back F₁ plants to either of the two parental types is called

Ans. Test cross

Q. 27. Who has developed alley cropping

Ans. B. T. Kang

Q. 28. Neem Day is being celebrated on

Ans. August 8

Q. 29. In C₃ plants, the first stable compound formed after CO₂ fixation is

Ans. 3-phosphoglycerate

Q. 30. During guttation water is lost through

Ans. hydathodes

Q. 31. The term 'azofication' stands for _____.

Ans. Non symbiotic N-fixation by *Azotobacter*

Q. 32. The smallest volume that can be called 'a soil' is?

Ans. Pedon

Q. 33. The world 'Mutation' was first used by ?

Ans. Hugo de vries

Q. 34. Coastal soils are rich in

Ans. K

Q. 35. Transpiration is least in

Ans. High atmospheric humidity

Q. 36. Stomata open at night and close during day time in

Ans. Succulents

Q. 37. The world's total geographic area is _____.

Ans. 13300 Mha

Q. 38. Those soil which contain low salt and high amount of exchangeable sodium is known as

Ans. Non saline alkaline soil

Q. 39. How many element occurs in plant body ?

Ans. 20

Q. 40. Evapo-transpiration expressed in _____.

Ans. cm/hr

Q. 41. Soil bulk density is greatest in which soils?

Ans. Sand

Q. 42. The father of green revolution is

Ans. N. E. Borlaug

Q. 43. Crop rotation is useful for

Ans. Improving fertility

Q. 44. The term azofication stands for

Ans. Non-symbiotic nitrogen-fixation by Azotobacter

Q. 45. Which one is the principal 'N' fixing blue green algae

Ans. Anabeana

Q. 46. Khaira disease of rice can be controlled by spraying

Ans. Zinc sulphate

Q. 47. Zoo geographical distribution of animals was proposed by

Ans. Scaler and Wallace

Q. 48. Who gave the statement 'water is the sole nutrient of plants'?

Ans. J. B. Helmont

Q. 49. The test has self purification capacity of water body ?

Ans. BOD test

Q. 50. Plants growing on acidic soil

Ans. Oxylophytes

Q. 51. To predict earthquake, the following is the easiest way

Ans. Release of Radon gas

Q. 52. UNEP-led Green Economy initiative means

Ans. Analysing the macroeconomic; sustainability and poverty reduction implications of green investment by the country.

Q. 53. Vision of Digital India is

Ans. 1. Digital infrastructure as a utility to every citizen.
2. Electronic delivery of services and 3. Digital empowerment of citizens.

Q. 54. Skill India programme aims to

Ans. Skill the youth in such a way so that they get employment and also improve entrepreneurship

Q. 55. Most populated city of India according to census 2011 is

Ans. Kolkata

Q. 56. National park of India, also declared by a UNESCO world Heritage site

Ans. MANAS

Q. 57. Microbial type culture collection centre is situated at

Ans. Chandigarh

Q. 58. Decreasing productivity in various systems is sequenced as

Ans. Mangroves > Grasslands > Lakes > Oceans

Q. 59. The first Airport in the world that would be running fully on solar power is the

Ans. Cochin International Airport, Kerala

Q. 60. World Global Risk Report 2016 is published by

Ans. World Economic Forum (WEF)

Q. 61. Which country introduced the 'Green Army' for environmental protection conservation.

Ans. Australia

Q. 62. Term smog was first coined and used by

Ans. Des Voeux (1905)

Q. 63. Term Acid rain was introduced by

Ans. Robert August (1872)

Q. 64. Which gas binds Haemoglobin 200 times more than oxygen

Ans. Carbon monoxide (Co)

Q. 65. Salt content in fresh water is about

Ans. 0.5%

Q. 66. Sphere of earth covered by ice and snow is

Ans. Cryosphere

Q. 67. Process of frozen soil expansion is called

Ans. Soil heaving

Q. 68. Most important form of water available to plants

Ans. Capillary water (It is held by capillary forces between the soil particle in the micropores after the removal of runoff water and gravitational water).

Q. 69. Maximum water holding capacity is found in

Ans. Clay soil

Q. 70. Important and central to soil health is

Ans. Available soil carbon

Q. 71. India's first fully organic state is

Ans. Sikkim

