

GPLUS EDUCATION

Date :
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BIOLOGY

MICROBES IN HUMAN WELFARE

Single Correct Answer Type

- Jojoba contains
 - C-20 to C-6 bromohydric alcohol wax and triglyceride
 - Wax
 - Triglyceride
 - Sterol
- Castor oil is yielding from which of the following?
 - Brassica campestris*
 - Sesamum indicum*
 - Ricinus communis*
 - Cocos nucifera*
- A hybrid where the cytoplasm of two parent cells are fused by retaining only one parental nucleus is called
 - Asymmetric somatic hybrid
 - Cybrid
 - An interbreed
 - Symmetric somatic hybrid
- Which one of the following is being utilized as a source of biodiesel in the Indian countryside?
 - Euphorbia
 - Beetroot
 - Sugarcane
 - Pongamia
- Powdery mildew of wheat is caused by species of
 - Puccinia*
 - Erysiphe*
 - Ustilago*
 - Albugo*
- Toddy is made by ...A... of sap from palm tree by ...B.... Here A and B refers to
 - A-fermentation; B-yeast
 - A-fermentation; B-bacteria
 - A-distalation; B-yeast
 - A-distalation; B-bacteria
- Which of the following belongs to free living nitrogen fixing bacteria?
I. *Rhizobium* II. *Azospirillum* III. *Azotobacter*
Choose the correct option
 - I and II
 - I and III
 - II and III
 - I, II and III
- Which one of the following is biofuel?
 - Wood
 - Petroleum
 - Natural gas
 - Coal
- Quinine used for treatment of malarial fever is extracted from
 - Atropa belladonna*
 - Cinchona officinalis*
 - Aconitum napellus*
 - Rauwolfia serpentina*
- Clove oil is obtained from
 - Wood of *Santalum*
 - Leaves of *Syzygium aromaticum*
 - Flowers buds of *Syzygium aromaticum*
 - Rhizome of *Vatevaria*
- Which role is played by *Lactobacillus* in our stomach?
 - Harmful
 - Neutral
 - Beneficial
 - Sometimes (a) and sometimes (b)
- Which one of the following is a systematic insecticide?
 - Malathion
 - Parathion
 - Endrin
 - Furadan
- Choose the minor carp from the following
 - Cyprinus carpio*
 - Anguilla sp*
 - Labeo bata*
 - Ctenopharyngodon idella*
- 'Himgiri' developed by hybridization and selection for disease resistance against rust pathogens is a variety of
 - Maize
 - Sugarcane
 - Wheat
 - Chilli
- The pesticide most persistent in the soil is
 - DDT
 - BHC
 - Dieldrin
 - Baygon

16. Besides dung, the weed that can be used in biogas production is
 a) *Hydrilla* b) *Solanum nigrum*
 c) *Eichhornia crassipes* d) *Parthenium Hysterophorus*
17. Which one of the following is a petroleum plant?
 a) Euphorbia b) Potato c) Sugarcane d) Maize
18. An organism used as biofertiliser for raising any legume crop is
 a) *Nostoc* b) *Anabaena* c) *Clostridium* d) *Rhizobium*
19. Rice bran oil is used as an
 a) Antibiotic b) Anti-corrosive c) Anti-helminthic d) Insecticide
20. Yeast have been used for the commercial production of
 I. ethanol II. bread III. cheese
 Choose the correct option
 a) I and II b) I and III c) I, II and III d) None of these
21. The plant, which is used for studying hybrid vigour or heterosis is
 a) Maize b) Pea c) Datura d) None of these
22. Sewage contains large amounts of ...A... and ...B... Here A and B refers to
 a) A-inorganic matter; B-bacteria b) A-organic matter; B-pathogenic microbes
 c) A-organic matter; B-virus d) A-inorganic matter; B-pathogenic microbes
23. Which of the following is a wrong matching of a microbe and its industrial product?
 a) Yeast – Statins
 b) *Acetobacter aceti* – Acetic acid
 c) *Clostridium acedobutylicum* – Lactic acid
 d) *Aspergillus niger* – Citric acid
24. Removal of anthers of some flowers during plant breeding is
 a) Emasculation b) Anthesis
 c) Pollination d) For collection of pollen
25. The plant of *Triticum aestivum* is
 a) Haploid b) Diploid c) Tetraploid d) Hexaploid
26. Physical removal of large and small stable solid particles from the sewage through filtration and sedimentation is called
 a) Primary treatment b) Secondary treatment
 c) Tertiary treatment d) Quaternary treatment
27. Cocaine alkaloid is obtained from
 a) *Erythroxylon coca* b) *Thea chinensis* c) *Coffea arabica* d) *Theobroma cacao*
28. First man-made cereal (*i.e., triticale*) is
 a) Octaploid b) Hexaploid c) Both (a) and (b) d) Diploid
29. Identify the blank spaces A, B, C, D given in the following table and select the correct answer

| Types of Microbes | Scientific Name | Product | Medical Application |
|-------------------|----------------------------------------------|----------------------|---------------------|
| Fungus C | A <i>Mona scus Purp ureus</i> | Cycloporin Statin | B D |

- a) A- *Trichoderma polysporum*, B-As an immunosuppressive agent in organ transplant patients, C-Yeast, D- as blood-cholesterol lowering agent
- b) A- *Trichoderma polysporum*, B-As blood-cholesterol lowering agent, C-Protozoa, D- As an immunosuppressive agent in organ transplant patients

- c) *A-Clostridium butylicum*, B-used as a clot-buster, C-Yeast, D-As blood-cholesterol agent
d) *A-Clostridium butylicum*, B-As blood-cholesterol lowering agent, C-Yeast, D-used as a clot-buster
30. Organic farming includes
I. use of biofertilisers and biopesticides
II. crop rotation
III. locally developed pest resistant varieties
Choose the correct option
a) I and II b) I and III c) II and III d) I, II and III
31. Which of the following plant yields oil and fibre both?
a) *Cocos nucifera* b) *Eucaiyptus*
c) *Brassica compestris* d) *Euphorbia hirta*
32. *Trichoderma* species, free living fungi, are present in root ecosystems are potentially useful as
a) Biopesticides b) Biofertilisers
c) Methanogens d) Vectors for genetic engineering
33. Which of the following plants are used as green manure in crop, fields and in sandy soils?
a) *Crotalaria juncea* and *Alhagi comelorum* b) *Calotropis procera* and *Phyllathus niruri*
c) *Sachharum munja* and *Lantana camara* d) *Dichanthum annulatum* and *Acacia nilotica*
34. Mule is a product of
a) Breeding b) Mutation
c) Hybridization d) Interspecific hybridization
35. The pioneer country in the production of fuel-alcohol is
a) Saudi Arabia b) Iran & Iraq c) Brazil d) Japan
36. The disease in poultry, which reduces immunity and spreads through contaminated food is
a) Ranikhet disease b) Aflotoxicosis c) Thrush d) Marek's
37. Potato is a native of
a) Brazil b) Peru c) Panama d) Mexico
38. Which stage of silkworm secretes silk?
a) Adult b) Larva c) Cocoon d) Pupa
39. Morphine, which is used as an analgesic is obtained from
a) *Cinchona officinalis* b) *Papaver somniferum*
c) *Taxus brevifolia* d) *Berberis nilghiriensis*
40. By which of the following methods, new and better varieties of plants can be formed?
a) Selection b) Grafting
c) Hybridization d) Hybridization followed by selection
41. Methanogens are found in
I. organic acid
II. rumen of cattle
III. butanal
IV. anaerobic sludge
Choose the correct option
a) I and II b) II and III c) II and IV d) III and IV
42. LSD is obtained from
a) *Claviceps purpurea* b) *Rauwolfia serpentina*
c) *Papaver somniferum* d) *Cannabis sativa*
43. Which of the following food items are produced through fermentation by the microorganisms?
I. Idli
II. Dosa
III. Toddy
IV. Cheese

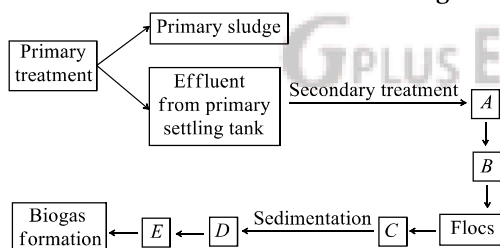
Choose the correct option

- a) I, II and III b) I, III and IV c) II, III and IV d) I, II, III and IV
44. Roquefort cheese is formed by ripening with the fungi for a particular
a) Colour b) Flavor c) Shape d) Texture
45. A drug used for ...A... patients is obtained from a species of the organismB...
Choose the correct option for A and B
a) A-heart; B-*Penicillium* b) A-organ transplant; B-*Trichoderma*
c) A-swine flu; B-*Monascus* d) A-AIDS; B-*Pseudomonas*
46. Which one of the following is correct?
a) Herbicides kill plant mostly by blocking PS-II (photolysis of water) and occasionally phloem transport
b) Insecticides kill insects mostly through impairment of nerve conduction and sometimes through respiratory arrest
c) Both (a) and (b)
d) None of the above
47. In honey, the percentage of maltose and other sugar is
a) 9.2 b) 8.81 c) 10.5 d) 11.2
48. Yeast is used in the production of
a) Citric acid and lactic acid b) Lipase and pectinase
c) Bread and beer d) Cheese and butter
49. Most of the petrocrops belong to family
a) Malvaceae b) Rutaceae c) Leguminosae d) Euphorbiaceae
50. Which of the following has been covered under the broad patent category?
a) *Triticum* b) *Oryza* c) *Pisum sativum* d) *Brassica*
51. Which of the following is exhaustible but limited source of energy?
a) Nuclear fuels b) Water energy c) Fossil fuels d) Solar energy
52. Consider the following statement
I. Biochemical Oxygen Demand (BOD) represents the amount of dissolved oxygen that would be consumed if all the organic matter in 1 L of water were oxidized by microorganism
II. Low value of BOD means the water is either normal or less polluted by organic matter
III. High value of BOD means the water is highly polluted by organic matter
Which of statement given above are correct?
a) I and II b) I and III c) II and III d) I, II and III
53. *Gossypium hirsutum* is
a) New world tetraploid b) Old world tetraploid
c) New world diploid d) Old world diploid
54. The natural method of pest and pathogen control involving use of viruses, bacteria and other insects is called
a) Biochemical control b) Biological gene control
c) Biocontrol d) Chemical control
55. The function of penicillin as an antibiotic was established by
a) Alexander Flemming b) Ernst Chain c) Howard Florey d) Both (b) and (c)
56. Big holes in Swiss cheese are made by
a) A machine b) A bacterium producing a large amount of carbon dioxide
c) A bacterium that produces carbon monoxide gas d) A fungus that produces a lots of gases during its metabolic activities
57. ...A... is a methane rich fuel gas produced by ...B... breakdown with the help of ...C... bacteria. Here A, B and C refers to
a) A-Gobar gas, B-aerobic, C-fermentative b) A-Biogas, B-anaerobic, C-methanogenic

- c) A-water gas, B-aerobic, C-Methanogenic d) A-Biogas, B-anaerobic, C-fermentative
58. The medicinal plants is
a) *Cinchona* b) *Opium* c) *Rauwolfia* d) All of these
59. Which of the following are main the benefits of LAB?
I. Increase vitamin-B₁₂ amount, thus increasing nutrient quality of milk
II. Checks disease causing microbes in stomach
Choose the correct option
a) Only I b) Only II c) I and II d) None of these
60. Which is produced during anaerobic fermentation of agricultural wastes?
a) Methane b) CO₂ c) Carbon monoxide d) Biogas
61. Insecticide obtained from neem plant is
a) Pyrethrin b) Pyrethroid c) Thiocarbamate d) Azadirachtin
62. In poultry birds, nasal and eye discharges with foul smell, acute respiratory problem and inflamed and swollen eyes are the symptoms of
a) Chronic respiratory disease b) Infectious coryza disease
c) Brooder pneumonia disease d) Marck's disease
63. Isinglass, a type of byproduct of fish industry is principally used for
a) Feeding cattle, pigs and poultry b) Preparation of paints and varnishes
c) Clarification of vinegar, wines and beer d) Production of insulin
64. Which of the following serve as biofertiliser in paddy fields?
a) *Anabaena* b) *Azospirillum* c) *Nostoc* d) Both (a) and (c)
65. Which one of these microbes is used in the commercial production of butyric acid?
a) *Clostridium butylicum* b) *Streptococcus butylicum*
c) *Trichoderma polysporum* d) *Saccharomyces cerevisiae*
66. Primary treatment is the
a) Physical removal of large and small particles from sewage
b) Biological removal of large and small particles from sewage
c) Both (a) and (b)
d) Chemical removal of large and small particles from sewage
67. Benefits of mycorrhizae are
I. resistance to root borne pathogen
II. tolerance to salinity and pathogen
III. overall increase in the plant growth and development
Choose the correct option
a) I and II b) I and III c) II and III d) I, II and III
68. Biogas is a mixture of inflammable gases like
a) Methane, CO₂, H₂ and H₂S b) Methane, CO, H₂ and N₂
c) CO₂, H₂ and H₂S d) CO, Methane and N₂
69. Biogas production from waste biomass with the help of methanogenic bacteria is
a) Multi step process b) One step process c) Two step process d) Three step process
70. The organisms which are used to enrich the nutrient quality of the soil are called
a) Bacteria b) Cyanobacteria c) Fungi d) All of these
71. In silk fibre, the central core is made up of
a) Sericin b) Fibroin c) Gum d) Cellulose
72. The part of flower of *Crocus* that yields saffron is
a) Calyx b) Corolla c) Perianth d) Style and stigma
73. Which of the following bacteria convert milk into curd?
a) *Propionibacterium sharmanil* b) *Saccharomyces cerevisiae*
c) *Lactobacillus* d) Thermophilic bacteria

74. Which is the major crop in Asia?
 a) Rice b) Sugarcane c) Jowar d) Millet
75. Which method of plant breeding resulted in the production of 'Hessian fly resistant' wheat variety?
 a) Intrageneric hybridization b) Back cross
 c) Bulk method d) Intraspecific hybridization
76. The raw material obtained, from which one of the following plants, and is used in paper making?
 a) *Jerusalem artichoke* b) *Oryza sativa* c) *Sorghum vulgare* d) *Butea monosperma*
77. Which of the following fibres is not a plant product?
 a) Flax b) Cotton c) Hemp d) Silk
78. The most important of the symbiotic nitrogen fixing bacteria, which forms nodules on the roots of legume plants is
 a) *Aspergillus* b) *Rhizobium* c) *Penicillium* d) *Streptococcus*
79. Read the following statement having two blanks (A and B)
 A drug used for ...A... patients is obtained from a species of the organismB... . It helps in clearing blood clots inside the blood vessels.
 The one correct option for the two blanks are
 a) A-heart; B-*Streptococcus* b) A-organ transplant; B- *Trichoderma*
 c) A-heart; B-*Pseudomonas* d) A-organ transplant; B-*Monascus*
80. Study the following related to uses of plants and identify the correct match for sorghum and cotton respectively.
 I. Blood purification and organic fertilizer.
 II. Animal feed and paper industry.
 III. Vitamin-B and cosmetics.
 IV. Explosives and organic fertilizer.
 a) I and II b) II and III c) III and IV d) II and IV
81. Consider the following statements about methanogens bacteria
 I. Methanogen bacteria are commonly found in the anaerobic sludge formed during sewage treatment
 II. These bacteria are also occur in rumen of the cattle where they act upon cellulosic material to breakdown cellulose
 III. They play a very important role in the nutrition of cattle by digesting cellulosic material
 Which of the statement given above are correct?
 a) I, II and III b) I and II c) I and III d) II and III
82. Indian rose wood tree is a common name of
 a) *Acacia* b) *Shorea* c) *Delbergia* d) *Eucalyptus*
83. Microorganisms or microbes are found in
 a) Soil, air, water and inside the bodies of living organisms
 b) Thermal vents deep in soil
 c) Under snow as well as acidic environment
 d) All of the above
84. Emasculation is concerned with
 a) Hybridization b) Clonal selection c) Mass selection d) Pure line selection
85. From which part of coconut coir is obtained?
 a) Pericarp b) Mesocarp c) Epicarp d) Endocarp
86. Microorganism such as *Lactobacillus* and others are commonly called
 a) Citric Acid Bacteria (CAB) b) Lactic Acid Bacteria (LAB)
 c) Tartaric Acid Bacteria (TAB) d) Formic Acid Bacteria (FAB)
87. Which of the following crops have been brought to India from New world?
 a) Cashewnut, potato, rubber b) Mango, tea
 c) Tea , rubber, mango d) Coffee

88. Which one of the following types of silk is being produced extensively in South East Asia?
 a) Eri b) Mulberry c) Tassar d) Muga
89. Aleurone grains are rich in
 a) Fat b) Protein c) Carbohydrates d) Auxins
90. Most recent insecticides in India are
 a) Chlorinated hydrocarbons b) Organophosphorus compounds
 c) Carbamides d) Pyrethroids
91. Breeding of crops with high levels of minerals, vitamins and proteins is called
 a) Somatic hybridization b) Biofortification
 c) Biomagnifications d) Micropropagation
92. The microorganism used in production of biogas is
 a) Bacteria b) Virus c) Algae d) Yeast
93. Chicks of the first week in the brooder hover are usually susceptible to which one of the following disease?
 a) Marek's disease b) Cotaxis c) Ranikhet disease d) Whirling disease
94. The most common fungal partner of mycorrhiza belongs to genus
 a) *Azotobacter* b) *Glomus* c) *Azolla* d) *Frankia*
95. Disadvantages of chemical agents are
 I. chemicals are toxic and harmful to human beings and animals
 II. chemical pollute the environment and plants
 III. weedicides used to remove weeds also pollute the soil
 Choose the correct option
 a) I, II and III b) I and II c) I and III d) II and III
96. *Bacillus thuringiensis* (*Bt*) strains have been used for designing novel
 a) Bio-metallurgical technique b) Bio-mineralisation processes
 c) Bio-insecticidal plants d) Bio-fertilizers
97. Given below is the flowchart of sewage treatment. Identify *A, B, C, D* and *E* and select the correct option



- a) A-small aeration tank, B-Microbial digestion, C-High BOD, D-Activated sludge, E-Aerobic sludge digesters
- b) A-Large aeration tank, B-Mechanical agitation, C-Increased BOD, D-Activated sludge, E-Aerobic sludge digesters
- c) A-small aeration tank, B-Microbial digestion, C-Low BOD, D-Activated sludge, E-Anaerobic sludge digesters
- d) A-Large aeration tank, B-Mechanical agitation, C-Reduced BOD, D-Activated sludge, E-Anaerobic sludge digesters
98. Brewer's yeast is
 a) *Aspergillus fumigatus* b) *Saccharomyces cerevisiae*
 c) *Streptomyces griseus* d) *Clostridium botulinum*
99. The free-living fungus *Trichoderma* can be used for
 a) Killing insects b) Biological control of plant diseases
 c) Controlling butterfly caterpillars d) Producing antibiotics
100. Identify the blank spaces *A, B, C* and *D* given in the following table and select the correct answer

| Types of | Scientific | Commercial |
|----------|------------|------------|
|----------|------------|------------|

| Microbes | Name | Product |
|-----------|-------------------------------|--------------------|
| Bacterium | A | Clot buster enzyme |
| B | <i>Aspergillus niger</i> | Citric acid |
| Fungus | <i>Trichoderma polysporum</i> | C |
| Bacterium | D | Butyric acid |

- a) A-*Streptococcus*, B-Fungus, C-Cyclosporin-A, D-*Clostridium butylicum*
 b) A-*Clostridium butylicum*, B-Bacterium, C-Cyclosporin-A, D-*Lactobacillus*
 c) A-*Propionibacterium sharmanii*, B-Bacterium, C-Streptokinase, D-*Penicillium roqueforti*
 d) A-Microsporium, B-Fungus, C-Tartaric acid, D- *Streptococcus*

101. Father of green revolution in India is
 a) M S Swaminathan b) N Borlaug c) R Mishra d) P Maheswari
102. Which of the following can be controlled by using biopesticides?
 a) Insects b) Diseases c) Weeds d) All of these
103. Microbes are used in
 I. primary treatment of sewage
 II. secondary treatment of sewage
 III. anaerobic sludge digesters
 IV. production of biogas
 Choose the correct option
 a) I, II and III b) I, III and IV c) II, III and IV d) I, II, III and IV
104. Desired improved varieties of economically useful crops are raised by
 a) Migration b) Biofertilizer c) Hybridization d) Natural selection
105. Neem tree has acquired industrial importance as a source of
 a) Biofertilizer, biopesticide and anti-fertility compound
 b) Anti-fertility compound, biofertilizer and anti-cancer drug
 c) Biopesticide and anti-fertility compound
 d) Anti-cancer drug, biopesticide and biofertilizer
106. Which one of the following is not a nitrogen-fixing organism?
 a) *Anabaena* b) *Nostoc* c) *Azotobacter* d) *Pseudomonas*
107. Which of the following shows maximum genetic diversity in India?
 a) Rice b) Maize c) Mango d) Groundnut
108. Cloves are obtained from
 a) Seed b) Fruit c) Coat d) Flower bud
109. Which of the following herbicides and defoliant were used by the US military in its herbicidal warfare programme during the Vietnam war?
 a) Agent black b) Agent orange c) Super orange d) Both (b) and (c)
110. In crop improvement programme, haploids are of great importance because they
 a) Grow better under adverse condition
 b) Are useful in the study of meiosis
 c) Requires only about half the amount of chemical fertilizers compared to diploids
 d) Give homozygous lines
111. Pollution from animal excreta and organic waste from kitchen can be most profitably minimised by
 a) Storing them in underground storage tanks b) Using them for producing biogas
 c) Vermiculture d) Using them directly as biofertilizers
112. Cellulose fibre is obtained from *Gossypium*
 a) Stem surface b) Seed hair c) Leaf surface d) Root hair

113. Biogas production is carried out by
 a) Thermoacidophils b) Methanogens c) Halophiles d) Luminants
114. Methanogens, growing anaerobically on cellulosic material, produce
 a) Methane b) Methane and carbon dioxide
 c) Methane and hydrogen d) Methane, carbon dioxide and hydrogen
115. Which one is a neem product used as insect repellent?
 a) Azadirachtin b) Rotenone c) Parathione d) Endrin
116. *Triticale*, the first man-made cereal crop, has been obtained by crossing wheat with
 a) Rye b) Pearl millet c) Sugarcane d) Barley
117. Which one of the following is being tried in India as a bio-fuel substitute for fossil fuels?
 a) *Jatropha* b) *Azadirachta* c) *Musa* d) *Aegilops*
118. Mycorrhiza does not help the host plant in
 a) Enhancing its phosphorus uptake capacity
 b) Increasing its tolerance to drought
 c) Enhancing its resistance to root pathogens
 d) Increasing its resistance to insects
119. Which of the following is a disease resistant, high yielding breed of poultry developed in Karnataka?
 a) Aseel b) White leg horn c) Giriraja d) Plymouth rock
120. Which industrial products are synthesized from microbes?
 I. Antibiotics II. Fermented beverages
 III. Bioactive molecules IV. Enzyme
 Choose the correct option
 a) I, II, III and IV b) II, III and IV c) I, III and IV d) III and IV
121. A collection of plants and seeds having diverse alleles of all the genes of a crop is called
 a) Germplasm b) Gene library c) Genome d) Herbarium
122. Percentage composition of fibroin and sericin in silk is
 a) 50 : 40 b) 80 : 20 c) 30 : 70 d) 40 : 60
123. *Simmondsia chinensis* is commonly known as
 a) Amla b) Poppy c) Teak wood d) Jojoba
124. The quickest method of plant breeding is
 a) Introduction b) Selection c) Hybridization d) Mutation breeding
125. The dough used for making bread is fermented by
 a) Bacteria b) Virus c) Prions d) Yeast
126. Chicken pox, small pox, etc., can be cure by
 a) Neem b) Tulsi c) Shatavari d) None of these
127. Nitrifying bacteria
 a) Convert free nitrogen to nitrogen compounds b) Convert proteins into ammonia
 c) Reduce nitrates to free nitrogen d) Oxidize ammonia to nitrates
128. Consider the following statements
 I. Ladybirds and dragonflies are used to get rid of aphids and mosquitoes
 II. The bacteria *Bacillus thuringiensis* (*Bt*) are used to control butterfly
 III. *Trichoderma* sp. free living fungi, are present in root ecosystems where they act against several plant pathogens
 IV. *Rhizobium* is a symbiotic bacterium that lives in the stem of legumes
 Which of the statements given above are correct?
 a) I, II and III b) I, III and IV c) II, III and IV d) II and IV
129. Cultivation of *Bt* cotton has been much in the news. The prefix *Bt* means
 a) 'Barium-treated' cotton seeds
 b) 'Bigger thread' variety of cotton with better tensile strength

- c) Produced by 'biotechnology' using restriction enzymes and ligases
d) Carrying an endotoxin gene from *Bacillus thuringiensis*
130. Which of the following cyanobacteria can fix atmospheric nitrogen?
I. *Volvox* II. *Oscillatoria*
III. *Nostoc* IV. *Anabaena*
Choose the correct option
a) I, II and III b) I, II and IV c) II, III and IV d) III and IV
131. From which one of the following plants, the insecticide pyrethrum is prepared?
a) *Vetivera* b) *Cymbopogon* c) *Chrysanthemum* d) *Tephrosia*
132. Bacterial fertilizer is
a) *Anabaena* b) *Nostoc* c) *Rhizobium* d) *Phycomyces*
133. Which of the following organisms is used in the production of beverages like wine, beer, whisky brandy or rum?
a) *Clostridium butylicum* b) *Aspergillus niger*
c) *Saccharomyces cerevisiae* d) *Penicillium notatum*
134. Recently Govt. of India has allowed mixing of alcohol in petrol. What is the amount of alcohol permitted for mixing in petrol?
a) 2.5% b) 10-15% c) 10% d) 5%
135. The chemical substances produced by some microbes, which can kill or retard the growth of other microbes are called
a) Ethanol b) Citric acid c) Antibiotics d) Opiates
136. Which of the following is/are the approach(es) for biological farming?
I. Familiarity with various life-forms inhabiting the field
II. Gain knowledge about the life cycles, patterns of feeding and habitat of predators and pests
Choose the correct option
a) Only I b) Only II c) I and II d) None of these
137. Which is a useful product of epidermal origin?
a) Saffron b) Cotton fibres c) Clove d) Jute
138. Today is traditional drink of
a) South India b) North India c) West India d) East India
139. Process of biogas production is an
a) Aerobic process b) Anaerobic process c) Active process d) None of these
140. Cork is obtained from
a) *Quercus suber* b) *Pinus roxburghii* c) *Cedrus deodara* d) *Mangifera indica*
141. *Nosema bombycis*, which causes pebrine in silk worms is a
a) Fungus b) Virus c) Bacterium d) Protozoan
142. In September 2001, which of the following was used as a bioweapon agent in America?
a) Botulinum b) Anthrax (*Bacillus anthracis*)
c) Polio virus d) AIDS virus
143. *Gambusia* fish is
a) Cat fish b) Sucker fish c) Mosquito fish d) Flat fish
144. Biogas produced by fermentation of manure, sewage, cattle dung, etc., predominantly comprises
a) Methane, nitrogen and hydrogen
b) Methane and carbon dioxide
c) Methane and carbon monoxide
d) Methane and nitric oxide
145. Chicory powder, which is mixed with coffee powder is obtained from
a) Root b) Leaf c) Stem d) Seeds
146. 'Kattha' is obtained from the heart wood of

- a) *Acacia Arabica* b) *Acacia fornesiana* c) *Acacia auriculiformis* d) *Acacia catechu*
147. *Trichoderma* sp. free living fungi has proved a useful microorganism of
a) Gene transfer in higher plants b) Biological control of soil-borne plant pathogens
c) Bioremediation of contaminated soils d) Reclamation of wastelands
148. Biogas is pathogen free because
a) Anaerobic digestion removes pathogens and bacteria
b) It is toxic to pathogens
c) During decomposition, it produce antibiotics
d) Cattle dung is pathogen free
149. What name has been assigned to the genus produced by a cross between cabbage and radish?
a) *Secale* b) *Bursa pastoris* c) *Lysogenicophyll* d) *Raphanobrassica*
150. Isinglass is a product obtained from air bladder of
a) Some snakes b) Some fishes c) Some aves d) None of these
151. The water soluble protein associated with silk thread is
a) Fibroin b) Sericin c) Chitin d) Mucin
152. Most nutritious among the following is
a) Wheat b) Maize c) Bajra d) Rice
153. Which gas is released during the process of fermentation that gives the puffy appearance to dough for making bread
a) CO₂ b) CO c) O₂ d) H₂
154. Real product of apiculture is
a) Honey b) Bee wax c) Both (a) and (b) d) None of these
155. Integrated Pest Management (IPM) discourages the excessive use of
a) Biological pesticides b) Chemical pesticides
c) Mechanical technology d) All of these
156. A pseudocereal is
a) *Fagopyrum esculentum* b) *Triticum aestivum*
c) *Zea mays* d) *Oryza sativa*
157. An organism used as a biofertilizer for raising soyabean crop production is
a) *Azospirillum* b) *Rhizobium* c) *Nostoc* d) *Azotobacter*
158. In maize, hybrid vigour is exploited by
a) Bombarding the seeds with DNA
b) Crossing of two inbred parental lines
c) Harvesting seeds from the most productive plants
d) Inducing mutations
159. Roquefort cheese is formed by ripening with the fungi
a) *Propionibacterium sharmanii* b) *Penicillium roqueforti*
c) *Propionibacterium roqueforti* d) *Penicillium sharmanii*
160. A straight fertilizer is the one, which is
a) Absorbed by roots directly b) Absorbed by the plants from aerial spray
c) Having only one primary nutrient d) Not easily leached
161. Which of the following microbe convert milk into curd?
a) Bacteria b) Virus c) Fungi d) Protozoa
162. Consider the following statements about organic farming
I. Organic farming promotes the use of crop rotations and cover crops and encourages balanced host/predator relationships
II. Integrated pest and weed management and soil conservation systems are valuable tools on an organic farm
III. Organic farming protects the environment, minimize soil degradation and erosion and decrease

pollution

Which of the statements given above are correct?

- a) I, II and III b) I and II c) I and III d) II and III
163. *Saccharomyces cerevisiae* is used for commercial production of
a) Butanol b) Ethanol c) Methanol d) Acetic acid
164. In the sewage treatment bacterial flocs are allowed to sediment in a settling-tank. This sediment is called as
a) Activated sludge b) Primary sludge c) Anaerobic sludge d) Secondary sludge
165. Genetic diversity in agricultural crops is threatened by
a) Introduction of high yielding varieties b) Intensive use of fertilizers
c) Extensive intercropping d) Intensive use of biopesticides
166. Which one of the following is used as biological insecticide?
a) Tiger beetle b) Caterpillar c) Silkworm d) Muzra poka
167. During the primary treatment of sewage, solid particles that settle down are called
a) Activated sludge b) Secondary sludge c) Primary sludge d) Anaerobic sludge
168. Recently discovered anti-cancer drug is obtained from
a) *Taxus* b) *Tagetes* c) *Tamarix* d) *Thea*
169. *Triticum aestivum*, the common bread wheat is
a) Triploid with 21 chromosomes b) Hexaploid with 42 chromosomes
c) Tetraploid with 30 chromosomes d) Diploid with 14 chromosomes
170. In plant A, $2n = 12$ and in plant B, $2n = 16$. Then the ploidy number of cross breeding plant is
a) 7 b) 21 c) 14 d) 28
171. BOD of waste water is estimated by measuring the amount of
a) Total organic matter b) Biodegradable organic matter
c) Oxygen evolution d) Oxygen consumption
172. Secondary sewage treatment is mainly a
a) Chemical process b) Physical process
c) Mechanical process d) Biological process
173. Producer gas differs from biogas in having
a) Methane b) Carbon monoxide
c) Carbon dioxide d) Formed by fermentation
174. *Bacillus thuringiensis* is used as
a) Biofungicide b) Biopesticide c) Biocontroller d) Bioweapon
175. The high yielding hybrid crop varieties to exploit hybrid vigour, the farmers to purchase fresh hybrid seed every year because
a) Hybrid vigour is not long standing due to inbreeding depression
b) They are not allowed to grow their own seed
c) It is always associated with increased heterozygosity
d) Government has accepted Dunkel's proposals
176. The residue left after methane production from cattle dung is
a) Burnt b) Buried in land fills
c) Used as manure d) Used in civil construction
177. Morphine obtained from opium is
a) Latex b) Pome c) Alkaloid d) Tannin
178. Ethanol is commercially produced through a particular species of
a) *Clostridium* b) *Trichoderma* c) *Aspergillus* d) *Saccharomyces*
179. *Bacillus thuringiensis* is used to control
a) Bacterial pathogens b) Viral pathogens c) Protozoans d) Insect pests
180. Which of the following statements regarding baculoviruses as bio-control agents is/are correct?

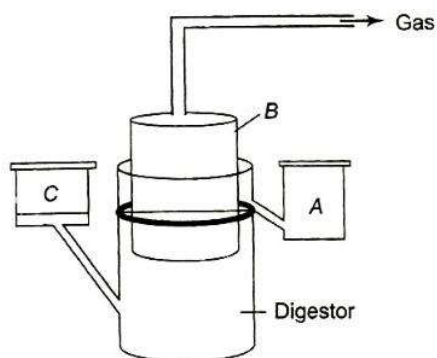
- I. Baculoviruses are pathogens that attack insects and other arthropods
- II. Most of these biocontrol agents belong to the genus *Nucleopolyhedro* virus
- III. They do not harm plants mammals, birds, fish and other non-target insects
- IV. Baculoviruses are helpful in Integrated Pest Management (IPM) programme, in which beneficial insects are conserved

Choose the correct option

- a) I, II and III b) I, II and IV c) II, III and IV d) All of these
181. The timber yielding plant *Shorea robusta* belongs to the which family?
 a) Fabaceae b) Rubiaceae c) Dipterocarpaceae d) Verbenaceae
182. Opium is obtained from which the part of *Papaver somniferum*?
 a) Seed b) Stem and leaf c) Unripe fruits d) Mature fruits
183. Which one of the following genus forms symbiotic association with plants and helps them in their nutrition?
 a) *Glomus* b) *Trichoderma* c) *Azotobacter* d) *Aspergillus*
184. By anaerobic process, the cow dung is used to produce
 a) Methane b) Butane c) Ethane d) Propane
185. India's wheat yield revolution in the 1960s was possible primarily due to
 a) Hybreed seeds b) Increased chlorophyll content
 c) Mutations resulting in plant height reduction d) Quantitative trait mutations
186. Introduced plants in new localities must show adaptations called
 a) Selection b) Acclimatization c) Modification d) Propagation
187. The world's highly prized wool yielding 'Pashmina' breed is
 a) Sheep b) Goat
 c) Goat-sheep cross d) Kashmiri sheep- A fghan sheep cross
188. Which one of the following pesticides is banned now-a-days?
 a) DDT b) Eldrin c) Aldrin d) Toxaphene
189. The technology of biogas production from cow dung was developed in India largely by the efforts of
 a) Oil and Natural Gas Commission
 b) Gas Authority of India
 c) Indian Agricultural Research Institute and Khadi and Village Industries Commission
 d) Indian Oil Corporation
190. Which of the following is wrongly matched?
 a) *Indigofera* – Dye b) *Sesbania* – Fodder c) *Petunia* – Fumigatory d) *Aloe* – Medicine
191. *Rauwolfia* is obtained from which part of the plant?
 a) Stem b) Root c) Fruit d) Leaf
192. Which one of the following is the American poultry breed?
 a) Australop b) Minorica c) Assel d) Rhod Island Red
193. ...A... released by LAB during growth coagulate and partially digest ...B... . Here A and B refers to
 a) A-Acid; B-milk protein b) A-Base; B-harmful bacteria
 c) A-Enzyme; B-milk protein d) A-Bacteria; B-other microbes
194. Which of the following is correct?
 I. Wine and beer are produced without distillation of fermented broth
 II. Whisky, brandy and rum are produced by distillation of the fermented broth
 III. Wine and beer are produced by distillation of the fermented broth
 IV. Whisky, brandy and rum are produced without distillation of the fermented broth
 Choose the correct option
 a) I and II b) I and III c) II and III d) III and IV
195. Quarantine regulation is meant for
 a) Preventing entry of diseased plants in the country b) Spraying diseased plants with insecticides

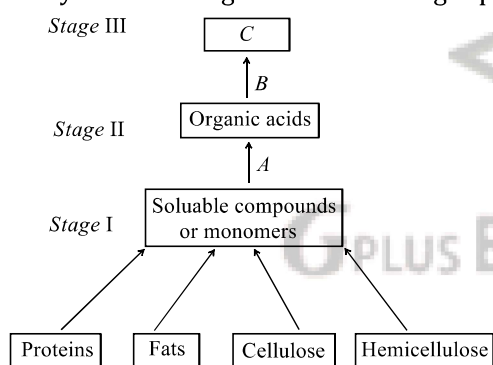
- c) Promoting dry farming
 d) Growing fruit trees in all the states
196. Which one of the following is not used in organic farming?
 a) Snail b) *Glomus* c) Earthworms d) *Oscillatoria*
197. Which type of endosperm will be formed on hybridization of diploid female plant and tetraploid male plant?
 a) Triploid b) Pentaploid c) Tetraploid d) Diploid
198. Protoplasts of two different species are used in
 a) Micro-propagation b) Somatic hybridization
 c) Clonal propagation d) Organography
199. An important drug is obtained from the bark of
 a) *Papaver* b) *Cinchona* c) *Withania* d) *Momordica*
200. Morphine is obtained from
 a) *Rauwolfia serpentina* b) *Papaver somniferum*
 c) *Cannabis sativa* d) *Cajanus cajan*
201. Which type of honey bees are useful for apiary industries in India?
 a) *Apis indica* b) *Apis dorsata* c) *Apis mellifera* d) *Apis florea*
202. The term heterosis was first coined by
 a) McClintock b) Boweri c) Swaminathan d) None of these
203. Consider the following statements
 I. Yeast used in making bread and beverages is a prokaryotic fungus
 II. Streptokinase is produced by *Streptococcus* and modified by genetic engineering is used as a clot buster
 III. Lipases are added in detergent for removing only stains from laundry
 IV. Pectinases are used in clearing fruit juices
 Which of the statement given above are correct?
 a) I, II, III and IV b) I, II and III c) II, III and IV d) III and IV
204. A sewage treatment process in which a part of decomposer bacteria present in the wastes is recycled into the starting of the process is called
 a) Cyclic treatment b) Activated sludge treatment
 c) Primary treatment d) Tertiary treatment
205. The main sources of biofertilisers are
 a) Protista b) Cyanobacteria c) Fungi d) All of these
206. Cotyledons and testa are edible parts of
 a) Groundnut and pomegranate b) Walnut and tamarind
 c) French bean and coconut d) Cashew nut and litchi
207. Cotton fibre is basically a type of
 a) Trichome b) Scale c) Dried seed coat d) Non glandular hair
208. Name the group of microbes used in biogas production
 a) Lactic acid bacteria b) Yeasts c) Cyanobacteria d) Methanogens
209. Root cells of wheat has $2n = 42$ chromosomes. Which one of the following is the basic chromosome number of wheat?
 a) 42 b) 21 c) 7 d) 14
210. An undistilled alcoholic beverage produced from grain-mesh fermentation is
 a) Beer b) Rum c) Curd d) Wine
211. Cytosporin-A an immunosuppressive drug is produced by the fungus
 a) *Aspergillus niger* b) *Monascus purpureus*
 c) *Penicillium notatum* d) *Trichoderma polysporum*
212. Choose the cat fish from the following
 a) *Cirrhina mrigala* b) *Wallago attu* c) *Labeo rohita* d) *Catla catla*

213. 'Jaya' and 'Ratna' developed for green revolution in India are the varieties of
 a) Rice b) Wheat c) Bajra d) Maize
214. Shakti, Rattan and Protina are three important lysine rich varieties of
 a) Rice b) Pulses c) Wheat d) Maize
215. Gobar gas generation technology was developed by the collaboration of ...A... and ...B... Here A and B refers to
 a) A-Rural Bank of India, B-Khadi and Village industries Commission
 b) A-Indian Agricultural Research Institute, B-Khadi and Village Industries Commission
 c) A-National Bank for Agriculture and Development, B-Indian Agricultural Research Institute
 d) A-National Bank for Agriculture and Development, B-Khadi and Village Industries Commission
216. Select the correct statement from the once given below
 a) Barbiturates when given to criminals make them tell the truth
 b) Morphine is often given to persons, who have undergone surgery as a pain killer
 c) Chewing tobacco lowers blood pressure and heart rate
 d) Cocaine is given to patients after surgery as it stimulates recovery
217. Pyrethrin is extracted from
 a) *Chrysanthemum cinorariifolium* b) *Derris eliptica*
 c) *Azadirachta indica* d) *Ryania speciosa*
218. Cod and shark liver oil is a source of
 a) Energetic nutrients b) Constructive nutrients
 c) Energetic and constructive nutrients d) Protective nutrients
219. Agricultural chemicals include
 a) Growth regulators b) Fertilizers c) Pesticides d) All of these
220. Leaves of which plant can sharpen the memory?
 a) *Asparagus* b) *Adhatoda* c) *Aloe vera* d) *Ocimum*
221. Which of the following plants is used as biofertilizer?
 a) *Nostoc* b) *Funaria* c) *Volvox* d) *Rhizopus*
222. Antibiotics are used to treat diseases like
 a) Diphtheria whooping cough b) Plaque
 c) Leprosy d) All of the above
223. The scientific name of zebu is
 a) *Bos indicus* b) *Bombyx mori* c) *Bubalus bubalus* d) *Gallus domesticus*
224. Reserpine is obtained from
 a) *Asafoetida* b) *Rauwolfia serpentina*
 c) *Curcuma longa* d) *Papaver somniferum*
225. The microscopic proteinaceous infectious agents are
 a) Viroids b) Prions c) Protozoa d) Bacteria
226. Biochemical Oxygen Demand (BOD) in a river water
 a) Has no relationship with concentration of oxygen in the water
 b) Gives a measure of *Salmonella* in the water
 c) Increases when sewage gets mixed with river water
 d) Remains unchanged when algal bloom occurs
227. Autopolyploids (numeric or quantitative polyploids or intraspecific polyploids) like ferns, garden plants, gram, maize, rice, banana, grapes, apple, etc, show
 a) Increased gene dosage b) Gigas effect and seedless fruits
 c) More yields and better adaptation d) All of the above
228. The below diagram represent a typical biogas plant. Select the correct option for A, B and C refers to



- a) A-Sludge, B-Dung + water, C-CH₄ + CO₂
 b) A-Dung + water, B-Sludge, C-CH₄ + CO₂
 c) A-Sludge, B- CH₄ and CO₂, C-Dung + water
 d) A-CH₄ + CO₂, B-Dung + water, C-Sludge
229. For cryopreservation, plant materials are frozen at
 a) -196°C b) -150°C c) -80°C d) -40°C
230. Activated sludge have the ability to settle quickly so that it can
 a) Be rapidly pumped back from sedimentation to aeration tank b) Absorb pathogenic bacteria present in waste water, while sinking to the bottom of the settling-tank
 c) Be discarded and anaerobically digested d) Absorb colloidal organic matter
231. Which of the following are the part or example of symbiotic mutualistic association?
 I. Yeast
 II. *Rhizobium*
 III. Mycorrhiza
 IV. *Oscillatoria*
 a) I and II b) I and III c) II and III d) III and IV
232. *Leucaena leucocephala* is
 a) Called subabul
 b) A small leguminous tree with edible fruits and seeds
 c) A fodder plant as its pods and leaves are consumed by cattle
 d) All of the above
233. High content of lysine is present in
 a) Wheat b) Apple c) Maize d) Banana
234. Which one of the following is not a biofertilizer?
 a) *Bacillus thuringiensis* b) *Azotobacter* c) *Azolla* d) *Clostridium*
235. Which of the following helps in absorption of phosphorus from soil by plants?
 a) *Rhizobium* b) *Frankia* c) *Anabaena* d) *Glomus*
236. Both power and manure are provided by
 a) Biogas b) Water gas c) Energy crops d) Nuclear plant
237. Opium is obtained from
 a) *Oryza sativa* b) *Selection* c) *Thea sinensis* d) *Papaver somniferum*
238. The part of castor seed that yields oil is
 a) Cotyledon b) Caruncle c) Endosperm d) Nucellus
239. Which one of the following is a viral disease of poultry?
 a) Salmonellosis b) Coryza c) New castle disease d) Pasteurellosis
240. Which one of the following is a disease of poultry?
 a) Foot and mouth disease b) Pebrine disease
 c) Anthrax d) Ranikhet disease

241. Baculoviruses do not show harmful effect on
 I. plants II. Mammals
 III. bird IV. Non-target insects
 Choose the correct option
 a) I, III and III b) II, III and IV c) I, III and IV d) I, II, III and IV
242. *Atropa belladonna* yields medicine used for
 a) Gastric ulcers b) Checking the eyes c) Leprosy d) Constipation
243. The terminator gene technology causes
 a) Failure of seed setting after one generation b) Breakage of seed dormancy
 c) Early flowering in plants d) None of the above
244. What will your conclude, when a cow is crossed to a bull and the female progeny is yielding more milk than its mother?
 a) More number of genes for high yielding milk are inherited, only from the female parent
 b) More number of genes for high yielding milk are inherited only from the male parent
 c) More number of genes for high yielding milk are inherited from both the parents
 d) The progeny through mutation achieved more number of genes for high yielding milk
245. CFCL is situated at
 a) Delhi b) Faridabad c) Mumbai d) Amritsar
246. Insecticides usually act upon
 a) Digestive system b) Nervous system c) Circulatory system d) Muscular system
247. Study the following flow chart of biogas production and select the correct option for A, B and C



- a) A-Methanogenic bacteria, B-Fermentative microbes, C-CO₂ and hydrogen (biogas)
 b) A-Anaerobic microorganisms, B-*Methanococcus*, C-CO₂ and nitrogen (biogas)
 c) A-Fermentative microbes, B-Methanogenic bacteria, C-CO₂ and methane (biogas)
 d) A-Aerobic microorganisms, B-Methanobacter, C-CO₂ and methane (biogas)
248. Which of the following is used as biofertiliser?
 I. Cyanobacteria
 II. Yeast
 III. Symbiotic bacteria
 IV. Free living bacteria
 Choose the correct option
 a) I, II and III b) I, III and IV c) II, III and IV d) I, II and IV
249. A commonly used mastigator called 'supari' is obtained from the plant
 a) *Acacia catechu* b) *Areca catechu* c) *Piper betel* d) None of these
250. Which of the following is not used as a biopesticide?
 a) *Bacillus thuringiensis* b) *Trichoderma harzianum*
 c) Nuclear Polyhedrosis Virus (NPV) d) *Xanthomonas campestris*
251. Which one of the following is not a biofertilizer?
 a) *Rhizobium* b) *Nostoc* c) Mycorrhiza d) *Agrobacterium*

252. Which of the following is used as 'clotbuster'. For removing clots from blood vessels of patient who have undergone myocardial infarction
 a) Ethanol b) Statins c) Cycloporin-A d) Streptokinase
253. Which of the following is an endogenic species of earthworm?
 a) *Octochaetona serrata* b) *Lampito mauritti*
 c) *Lumbricus terrestris* d) All of the above
254. Which bacteria are utilized in gobar gas plant?
 a) Methanogens b) Nitrifying bacteria
 c) Ammonifying bacteria d) Denitrifying bacteria
255. Energy cropping is
 a) Production of ethanol b) Production of methane
 c) Production of sugarcane d) Production of gas
256. What would happen if oxygen availability to activated sludge flocs is reduced?
 a) It will slow down the rate of degradation of organic matter
 b) The centre of flocs will become anoxic, which would cause death
 c) Flocs would increase in size as anaerobic bacteria would grow around flocs
 d) Protozoa would grow in large number
257. *Asafoetida* is obtained from
 a) Roots and stem b) Leaves c) Fruit d) Flower
258. The plant most commonly used as green manure is
 a) *Dilbergia sissoo* b) *Polyalthea* c) *Sesbania aculeata* d) None of these
259. What happened when we inoculate *Rhizobium* in the wheat field?
 a) No increase in production (nitrogen content of soil remains same)
 b) A lot of increase in production (nitrogen content of soil increases)
 c) Fertility of soil decreases
 d) Fertility of soil increases
260. In the biological treatment of sewage the masses of bacteria held together by fungal filament to form mesh like structures called as
 a) Activated sludge b) Aerobic process c) Flocs d) Anaerobic sludge
261. Toddy is
 I. a traditional drink of Southern India
 II. made by fermentation of sap from palm trees by bacteria
 Which of the statements given above about toddy is/are correct?
 a) Only I b) Only II c) I and II d) None of these
262. The symbiotic association of fungi with the roots of higher plants is called
 a) Eubacteria b) Actinomycetes c) Mycorrhiza d) Lichen
263. Sunhemp is obtained from
 a) *Crotalaria juncea* b) *Linum usitatissimum*
 c) *Corchorus capsularis* d) None of these
264. A common biocontrol agent for the control of plant diseases
 a) *Agrobacterium* b) *Glomus* c) *Trichoderma* d) Baculovirus
265. Three crops that contribute maximum to global food grain production are
 a) Wheat, rice and maize b) Wheat, maize and sorghum
 c) Rice, maize and sorghum d) Wheat, rice and barley
266. Pomato is
 a) Natural mutant b) Somatic hybrid c) Androgenic hybrid d) Somaclonal variant
267. The large holes in swiss cheese are due to production of a large amount of ...A... by a bacterium ...B.... Here A and B refers to
 a) A-CO₂; B-*Penicillium roqueforti* b) A-CO₂; B-*Propionibacterium sharmanii*

- c) A-CO₂; B-*Penicillium notatum* d) A-CO₂; B-*Saccharomyces cerevisiae*
268. The primary treatment of waste water involves the removal of
a) Dissolved impurities b) Stable and particles c) Toxic substances d) Harmful bacteria
269. Green manures are prepared from
a) *Saccharum officinarum* b) *Zea mays*
c) *Crotalaria juncea* d) *Sorghum vulgare*
270. Crossing of unrelated pure breeding animals of different traits within the same breed is called
a) cross breeding b) Out crossing
c) Close breeding d) Species hybridization
271. Heroin is obtained from plant of family
a) Papaveraceae b) Leguminosae c) Cruciferae d) Liliaceae
272. Disease resistance crop is obtained by
a) Crossing with new varieties b) Crossing with wild varieties
c) Injecting with organic compounds d) None of the above
273. Mating between two individuals differing in genotypes to produce genetic variation is called
a) Domestication b) Introduction c) Hybridization d) Mutation
274. Carbamates pesticides act by combining with acetylcholinesterase enzyme. Which one of the following is a carbamate?
a) Propoxur (baygon) b) Aldicarb (temik) c) Carbofuran (furan) d) All of these
275. The nutritive medium for growing bacteria and many fungi in the laboratory is called
a) Culture media b) Fermentation media
c) Baking media d) None of these
276. Which of the following statement is correct?
a) Cyanobacteria such as *Anabaena* and *Nostoc* are important mobilisers of phosphates and potassium for plant nutrition in soil
b) At present it is not possible to grow maize without chemical fertilisers
c) Extensive use of chemicals fertilisers may lead to eutrophication of nearby water bodies
d) Both *Azotobacter* and *Rhizobium* fix atmospheric nitrogen in root nodules of plants
277. Mycorrhiza promotes plant growth by
a) Absorbing inorganic ions from soil
b) Helping the plant in utilizing atmospheric nitrogen
c) Protecting the plant from infection
d) Serving as plant growth regulator
278. Rotenone is a
a) Bioherbicide
b) Commonly used biofertilizer
c) Bioinsecticide
d) Juvenile hormone
279. The starter or inoculum is added to the fresh milk in order to convert milk into curd, the term starter or inoculum here refers to
a) Bacteria rich in vitamin-B₁₂ b) Bacteria rich in protein
c) Bacteria containing millions of LAB d) All of the above
280. 'Nagkesar' is obtained from the flowers of
a) *Mesua ferrea* b) *Crocus sativus* c) *Viola odorata* d) *Centella asiatica*
281. The larvicidal fish used in biocontrol of mosquitoes, is
a) *Gambusia* b) *Hilsa* c) *Scalophagus* d) Gold fish
282. Which one of the following plants found in India is an escape from the quarantine?
a) Coffee plant b) *Eichhornia* c) Congress weed d) Cocoa
283. Green potatoes are toxic due to

- a) Phytoalexins b) Solanin c) Triazine d) Hormones
284. Baker's yeast is
a) *Propionibacterium sharmanii*
b) *Saccharomyces cerevisiae*
c) *Trichoderma polysporum*
d) *Lactobacillus*
285. Which one is not produced by aquaculture?
a) Oyster b) Silkworm c) Singhara d) Frog
286. Intoxicant caffeine is found in
a) Tea b) Coffee c) Cocoa d) All of these
287. The purpose of biological treatment of waste water is to
a) Reduce BOD
b) Increase BOD
c) Reduce sedimentation
d) Increase sedimentation
288. International Rice Research Institute (IRRI) is located at
a) Hyderabad (India) b) Manila (Philippines)
c) New York (USA) d) Tokyo (Japan)
289. Regulation to restrict the movement of diseased plant material from one place to another are called
a) Plant regulations b) Plant quarantine c) Plant protection d) Crop rotation
290. Which of the following is common to *Azospirillum*, *Anabaena*, *Nostoc* and *Oscillatoria*
a) N₂-fixer microbes b) Prokaryotic organism c) Both (a) and (b) d) Eukaryotic organism
291. Plants having similar genotypes produced by plant breeding are called
a) Haploid b) Autoploid c) Clone d) None of these
292. Quinine is obtained from
a) Bark of *Cinchona* b) Root of *cinchona* c) Wood of *cinchona* d) Leaves of *cinchona*
293. Which of the following plan has been initiated by the Ministry of Environment and Forests to protect rivers from water pollution?
a) Ganga action plan b) Yamuna action plan c) Both (a) and (b) d) Neither (a) nor (b)
294. In rice fields biological nitrogen fixation is chiefly brought by
a) Lichen b) Brown algae c) Cyanobacteria d) *Rhizobium*
295. Which of the following is correctly matched?
a) Central Rice Research institute – Shimla
b) National Botanical Research Institute – Delhi
c) Central Drug Research Institute - Cuttack
d) Central Drug Technology Research Institute – Mysore
296. Sewage or municipal waste should not be directly passed into rivers, streams and other water bodies because
I. it contains human excreta and other organic waste
II. it contains a number of pathogenic microbes
Which of the statement given above is/are correct?
a) Only I b) Only II c) Both (a) and (b) d) None of the above
297. Turpentine oil is obtained from
a) *Pinus longifolia* b) *Melia azadirachta* c) *Eucalyptus* d) All of these
298. Curd is formed by adding a small amount of curd to milk, which acts as a
a) Starter b) Inoculum c) Both (a) and (b) d) None of these
299. Statins used as blood cholesterol lowering agents are extracted from
a) Algae b) Yeast c) Virus d) Bacteria
300. *Triticum vulgare* has been found to be presently evolved as

- a) Diploid b) Tetraploid c) Pentaploid d) Hexaploid
301. A good example for organic fertilizer, which improves phosphorus uptake, is
a) A M fungi b) Rhizobium c) Azosprillum d) None of these
302. Cricket bat is made from the wood of
a) *Pinus walichiana* b) *Shorea robusta* c) *Salix sp* d) *Cedrus deodara*
303. Consider the following statements about *Bt*
I. The bacteria *Bacillus thuringiensis* (*Bt*) are used to control butterfly caterpillars
II. Fresh spores of *Bt* are mixed with water and sprayed on seeds such as brassicas and fruit trees
III. Insect larvae, after eating these are killed by the toxin released in their gut
IV. *Bt* toxin genes have been introduced into plants to provide resistance to pests
Which of the statements given above are correct?
a) I, II and III b) I, III and IV c) II, III and IV d) I, II, III and IV
304. Hybrid vigour is mostly due to
a) Superiority of all the genes b) Homozygosity of pure characters
c) Heterozygosity d) None of the above
305. Protein in silk thread is
a) Fibroin b) Keratin c) Albumin d) Globulin
306. Which of the following is a dual purpose breed?
a) Sindhi b) Deoni c) Jersey d) Sahiwal
307. Which is correctly matched?
a) Apiculture – Honey bee b) Pisciculture – Silk moth
c) Sericulture – Fish d) Aquaculture – Mosquito
308. In poultry, first deworming is usually done around this age
a) 4 weeks b) 8 weeks c) 12 weeks d) 16 weeks
309. 'Heterosis' is related to
a) Cloning b) Selection c) Hybridization d) Introduction
310. Which hexaploid wheat is used to make bread?
a) *Triticum turgidum* b) *Triticum durum*
c) *Triticum monococcum* d) *Triticum aestivum*
311. Somatic hybridization is a technique of
a) Natural breeding b) Natural pollination
c) Artificial pollination d) Somatic cells Hybridization
312. Allethrin is a commonly used
a) Fertilizer b) Herbicide c) Growth hormone d) Insecticide
313. Which one of these diseases in animals is caused by *Babesia bigemina*?
a) Rinderpest b) Tick fever c) Anthrax d) Diarrhoea
314. Which one of the following antibiotic was extensively used to treat American soldiers wounded in World War-II?
a) Streptokinase b) Penicillin c) Statins d) Neomycin
315. Blue-green algae are mainly used as biofertilisers in the field of which crop?
a) Gram b) Millet c) Rice d) Maize
316. A water fern, which is used as a green manure in rice fields is
a) *Salvinia* b) *Mucor* c) *Aspergillus* d) *Azolla*
317. A man made allopolyploid cereal crop is
a) *Hordeum vulgare* b) *Triticale* c) *Raphanobrassica* d) *Zea mays*
318. IPM (Integrated pest Management) involves
a) Tissue culture b) Biological control c) Biofertilizers d) Confusion technique
319. The part of cotton producing pure cellulose is
a) Root hair b) Leaf hair c) Seed hair d) Stem hair

320. *Mosascus purpureus* is a yeast (fungus) commercially used in the production of
- Acetic acid
 - Ethanol
 - Blood cholesterol lowering statin
 - Streptokinase
321. Study the following pathogens .
- Yersinia pestis*
 - Borrelia sp*
 - Odium albicans*
 - Microbacterium leprae*
 - Haemophilus gallinarium*
- Which of the above cause damage to poultry industry?
- I and IV
 - III and V
 - II and V
 - IV and V
322. During anaerobic digestion of organic waste, such as in producing biogas, which one of the following is left undegraded?
- Hemicellulose
 - Cellulose
 - Lipids
 - Lignin
323. The source of intoxicating beverage called 'Saky' is
- Sorghum vulgare*
 - Arachis hypogea*
 - Oryza sativa*
 - Mangifera indica*
324. Which of the following aquatic weeds is not used in production of biogas?
- Eichhornia crassipes
 - Hydrilla
 - Pistia stratiotes
 - Spirulina
325. In which method electric current is created for capturing fishes?
- Fish finding
 - Light fishing
 - Gill net fishing
 - Electro fishing
326. Which of following plant species you would select for the production of bioethanol?
- Brassica*
 - Zea mays*
 - Pongamia*
 - Jatropha*
327. Stramonium is a drug obtained from the plant species of
- Datura*
 - Ocimum*
 - Rauwolfia*
 - Asphodelus*
328. Silk is obtained from
- Bombyx mori*
 - Laccifera lacca*
 - Apis mellifera*
 - None of these
329. Caffeine, cocaine and amphetamine are
- Hallucinogens
 - Sedative
 - Tranquillizer
 - Stimulant
330. Which one of the fungi is used for production of citric acid?
- Lactobacillus bulgaricus*
 - Penicillium bulgaricus*
 - Aspergillus niger*
 - Rhizopus nigricans*
331. Methanogens, particularly *Methanobacterium* grow anaerobically on cellulosic material and produce
- methane
 - carbon dioxide
 - oxygen
 - ethane
- Choose the correct option
- I and II
 - I and III
 - III and IV
 - I, II and III
332. Consider the following statements about, secondary sewage treatment
- In secondary treatment useful aerobic microbes grow rapidly and form flocs. Flocs are masses of bacteria associated with fungal filaments to form mesh-like structures.
 - The growing microbes consume organic matter and thus reduce the biochemical oxygen demand. When BOD of sewage has reduced, the effluent is passed into settling tank.
 - In settling tank, the bacterial flocs settle and the sediment is called activated sludge.
 - A small part of the sludge is used as an inoculum in the aeration tank and the remaining part is passed into large tanks called anaerobic sludge digesters.
 - In the digesters, heterotrophic microbes anaerobically digest bacteria and fungi in sludge producing mixture of gases such as, carbon dioxide nitrogen and carbon monoxide which form the biogas
- Which of the statements given above are correct?

- a) I, II, III and IV b) I, III, IV and V c) II, III, IV and V d) I, II, III, IV and V
333. Gobar gas contains mainly
a) CH₄ and CO₂ b) CH₄ and O₂ c) CH₄ and H₂ d) CH₄ and SO₂
334. One of the major difficulties in the biological control of insect pest is that the
a) Method is less effective as compared with the use of insecticides
b) Predator does not always survive when transferred to a new environment
c) Predator develops a preference to other diets and may itself become a pest
d) Practical difficulty of introducing the predator to specific area
335. Study the following flow chart that shows curd formation from milk and select the correct option for A and B
- Milk is incubated with curd
↓
LAB shows growth in milk
↓
Production ofA.....
↓
Coagulation and digestion of milk protein
↓
Improved nutritional quality by increasedB....
- a) A-citric acid; B-vitamin-B₁₂ b) A-lactic acid; B-vitamin-B₁₂
c) A-lactic acid; B-vitamin-C d) A-citric acid; B-vitamin-B₂
336. Pencils are prepared from the wood of
a) *Pinus vinaster* b) *Juniperus virginiana*
c) *Chamaecyparis piscifera* d) *Abies pindrow*
337. *Rauwolfia serpentina* is used in
a) Curing high blood pressure b) Kidney failure
c) Eye defect d) Diabetes
338. Agriculture by using only biofertilisers is called
a) Manuring b) Composting c) Inorganic farming d) Organic farming
339. Penicillin is the first antibiotic. It was discovered by
a) Alexander Flemming : 1928 b) Alexander Flemming : 1930
c) S Waksman : 1928 d) S Waksman : 1930
340. In paddy fields biological nitrogen fixation is chiefly brought by
a) Cyanobacteria b) Green algae c) Mycorrhiza d) *Rhizobium*
341. Superiority of hybrid over parents is
a) Introduction b) Selection c) Hybridized progeny d) Hybrid vigour
342. Which of the following insecticides is obtained from the roots of *Derris elleptica*?
a) Cinerin b) Nicotine c) Rotenone d) Pyrethrum
343. Which of the following bacteria is present in the rumen of cattle?
a) *Rhizobium* b) *Azotobacter* c) *Methanobacterium* d) *Clostridium*
344. Which is a bioinsecticide?
a) *Cactoblastis cactorum* b) *Anabaena*
c) *Bacillus thuringiensis* d) *Rhizobium*
345. Wonder wheat is new wheat variety developed by
a) Mexico's international Wheat and Maize Improvement center
b) Indian National Botanical Research Institute
c) Australian Crop Improvement Center
d) African Crop Improvement Center
346. Which of the following is an opioid drug?

- a) Heroin b) Cocaine c) Marijuana d) Hashish

347. Select the correct statement from the following

- a) Activated sludge sediment in settlement tanks of sewage treatment plant is a rich source of aerobic bacteria
 b) Biogas is produced by the activity of aerobic bacteria on animal wastes
 c) *Methanobacterium* is an aerobic bacterium found in rumen of cattle
 d) Biogas, commonly called gobar gas is pure methane

348. Jute fibres are obtained from the

- a) Secondary phloem b) Pith c) Xylem d) Endodermis

349. Para rubber is obtained from the latex of

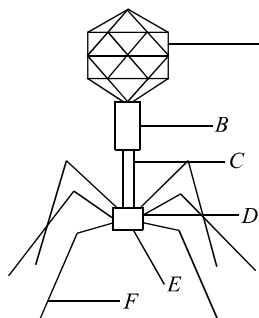
- a) *Ficus elastica* b) *Hevea brasiliensis* c) *Carica papaya* d) *Musa paradisiaca*

350. Identify the blank species *A, B, C* and *D* given in the following table and select the correct answer

| Types of Microbes | Scientific Name | Commercial, Product |
|-------------------|----------------------------|---------------------|
| Bacterium | <i>A</i> | Lactic acid |
| Fungus | <i>B</i> | Cyclosporine-A |
| <i>C</i> | <i>Monascus purpureus</i> | Statins |
| Fungus | <i>Penicillium notatum</i> | <i>D</i> |

- a) *A-Lactobacillus, B-Trichoderma polysporum, C-Yeast, D-Penicillin*
 b) *A-Staphylococcus, B-Clostridium, C-Yeast, D-Penicillin*
 c) *A-Lactobacillus, B-Microsporium, C-Yeast, D-Penicillin*
 d) *A-Straphylococcus, B-Microsporium, C-Agaricus, D-Penicillin*

351. Given below is the diagram of a virus bacteriophage. In which one of the option all the six parts *A, B, C, D, E* and *F* are correct?



- a) *A-Head, B-Tail, C-Collar, D-Pins, E-Plate, F-Prongs*
 b) *A-Head, B-Collar, C-Tail, D-Plate, E-Pins, F-Prongs*
 c) *A-Head, B-Tail, C-Collar, D-Plate, E-Prongs, F-Pins*
 d) *A-Head, B-Collar, C-Tail, D-Pins, E-Plate, F-Prongs*

352. Consider the following statements

- I. Antibiotics are chemical substances produced by some microorganisms which can kill or retard the growth of other disease-causing microorganisms
 II. Penicillin is the first antibiotic discovered by Alexander Fleming (1928), while working o bacterium *Staphylococcus aureus*
 III. The function of penicillin as an antibiotic was established by Ernst chain and Howard Florey
 Which of the statement given above are correct?

- a) I and II b) I and III c) II and III d) I, II and III

353. Swiss cheese is formed by the bacterium

- a) *Aspergillus niger* b) *Lactobacillus*

- c) *Propionibacterium sharmanii* d) *Penicillium roqueforti*
354. *Azolla* is used as a biofertilizer because it
- a) Multiplies very fast to produce massive biomass
 - b) Has association of nitrogen-fixing *Rhizobium*
 - c) Has association of nitrogen-fixing cyanobacteria
 - d) Has association of mycorrhiza
355. Methanogens do not produce
- a) Nitrogen b) Methane c) Hydrogen sulphide d) Carbon dioxide

