

## BIOTECHNOLOGY

(Final)

1. Syconus fruit develops from
  - (A) catkin
  - (B) verticillaster
  - (C) hypanthodium
  - (D) cyathium
2. The term protoplasm was coined by
  - (A) Robert Hooke
  - (B) Dujardin
  - (C) Robert Brown
  - (D) Purkinje
3. Both heterospory and circinate ptyxis occur in
  - (A) dryopteris
  - (B) pinus
  - (C) cycas
  - (D) funaria
4. Plant hormone causing abscission of leaves, senescence, bud dormancy and inhibition of cell division is
  - (A) IAA
  - (B) ethylene
  - (C) cytokinins
  - (D) ABA
5. Chlorosis in plants occurs due to
  - (A) high sunlight intensity
  - (B) low sunlight intensity
  - (C) absorption of yellow pigment from the soil
  - (D) deficiency of Mg and Fe in the soil
6. Gasohol is
  - (A) 20% ethanol + 80% petrol
  - (B) 20% ethanol + 70% petrol + 10% kerosene
  - (C) 10% ethanol + 80% petrol + 10% kerosene
  - (D) 10% ethanol + 90% petrol
7. Phytochrome is involved in
  - (A) phototropism
  - (B) photorespiration
  - (C) photoperiodism
  - (D) geotropism
8. Main function of lenticels is
  - (A) transpiration
  - (B) guttation
  - (C) bleeding
  - (D) gaseous exchange

9. Which of the following is used to determine the rate of transpiration in plants?
- (A) Porometer/hygrometer (B) Photometers  
(C) Auxanometer (D) Tensiometer/barometer
10. The protein part of enzyme is
- (A) prosthetic group (B) apoenzyme  
(C) holoenzyme (D) zymogen
11. Photo phosphorylation is the process in which
- (A) CO<sub>2</sub> and O<sub>2</sub> unite  
(B) Phosphoglyceric acid is produced  
(C) aspartic acid is formed  
(D) light energy is converted into chemical energy by production of ATP
12. In photosynthesis hydrogen is transferred from the light reactions to dark reactions by
- (A) DPN (B) DNA  
(C) ATP (D) NADP
13. The enzyme that fixes atmospheric CO<sub>2</sub> in C<sub>4</sub> Plants is
- (A) PEP carboxylase (B) hexokinase  
(C) RuBP oxygenase (D) hydrogrenase
14. Reserpine, is a drug extracted from
- (A) *Brassica oleraceae* (B) *Atropa belladonna*  
(C) *Rauwolfia serpentine* (D) *Digitalis purpurca*
15. Which of the following is an auxin receptor?
- (A) ETRI (B) CBPI  
(C) ABPI (D) GRE
16. In rice *Gibberella fujikuroi*, the fungus causes the
- (A) foolish seedling disease of rice  
(B) damping off seedling disease of rice  
(C) fungal blight disease of rice  
(D) rust disease of rice
17. Father of Botany, a pupil of Plato and friend of Aristotle was
- (A) Antonie Philips Van Leeuwenhoek  
(B) Caspard Bauhin  
(C) Charles Darwin  
(D) Theophrastus

18. The female genital pore of *Pheretima posthuma* is located upon which segment?
- (A) 14<sup>th</sup> (B) 16<sup>th</sup>  
(C) 18<sup>th</sup> (D) 15<sup>th</sup>
19. Polyp phase is absent in
- (A) Hydra (B) Physalia  
(C) Aurelia (D) Obelia
20. In a frog heart, there are cardiac muscles which consist of fibres called
- (A) purkinje fibres (B) telodendria  
(C) myonemes (D) columnae carnae
21. LH and FSH are collectively called
- (A) oxytocin (B) somatotrophins  
(C) luteotrophic (D) gonadotrophins
22. In *Ascaris*, the coelom is
- (A) Schizocoelom (B) Pseudocoelom  
(C) True coelom (D) Haemocoelom
23. 'Turbellarians' are free living
- (A) Nematodes (B) Cestodes  
(C) Flat worms (D) Trematodes
24. The characteristic larva of phylum 'Coelenterata' is
- (A) planula (B) cysticercus  
(C) rhabdiform (D) wriggler
25. Podocytes are the cells, present in
- (A) cortex of nephron  
(B) inner wall of Bowmans capsule  
(C) outer wall of Bowmans capsule  
(D) wall of glomerular capillaries
26. Tendons and ligaments are specialized types of
- (A) nervous tissue (B) muscular tissue  
(C) epithelial tissue (D) fibrous connective tissue

27. Kupffer cells are present in
- (A) liver (B) small intestine  
(C) pancreas (D) thyroid gland
28. The cyst wall of Euglena is made up of
- (A) lipids (B) histones  
(C) carbohydrates (D) lipoproteins
29. Which is classified as nonpolar covalent?
- (A) The H-I bond in HI (B) The H-S bond in H<sub>2</sub>S  
(C) The P-Cl bond in PCl<sub>3</sub> (D) The N-Cl bond in NCl<sub>3</sub>
30. What is the total number of electrons in the correct Lewis dot formula of the sulfite ion?
- (A) 8 (B) 24  
(C) 26 (D) 30
31. Which one of the following violates the octet rule?
- (A) PCl<sub>3</sub> (B) CBr<sub>4</sub>  
(C) NF<sub>3</sub> (D) AsF<sub>5</sub>
32. Arrhenius defined an acid as
- (A) a species that can donate a proton  
(B) a species that can accept a proton  
(C) a source of OH ions in water  
(D) a source of H<sup>+</sup> ions in water
33. In the Bronsted-Lowry system, a base is defined as
- (A) a proton donor (B) a hydroxide donor  
(C) an electron-pair acceptor (D) a proton acceptor
34. Which one of the following is an amphoteric metal hydroxide?
- (A) KOH (B) Ba(OH)<sub>2</sub>  
(C) Pb(OH)<sub>2</sub> (D) Mg(OH)<sub>2</sub>
35. What are the units of k for the rate law :  $\text{Rate} = k[A][B]^2$ , when the concentration unit is mol/L?
- (A) S<sup>-1</sup> (B) L<sup>2</sup> s<sup>2</sup> mol<sup>2</sup>  
(C) L mol<sup>-1</sup> S<sup>-1</sup> (D) L<sup>2</sup> mol<sup>2</sup> s<sup>-1</sup>

36. The half-life for a first-order reaction is 32 s. What was the original concentration if, after 2.0 minutes, the reactant concentration is 0.062 M?
- (A) 0.84 M (B) 0.069 M  
(C) 0.091 M (D) 0.075 M
37. When the concentration of reactants increased, the rate of the reaction shows an increase and is best explained as
- (A) the average kinetic energy of molecules increased  
(B) the frequency of molecular collisions increased  
(C) the rate constant increases  
(D) the activation energy increases
38. Which of the following is the strongest oxidizing agent?
- (A)  $\text{pb}^{2+}$  (B)  $\text{I}_2$   
(C)  $\text{Ag}^+$  (D)  $\text{Cu}^{2+}$
39. In the standard notation for a voltaic cell, the double vertical line "||" represents
- (A) a phase boundary (B) a standard hydrogen electrode  
(C) a wire connection (D) a salt bridge
40. What makes carbon a unique element?
- (A) Carbon comes in two forms, diamond and graphic.  
(B) Carbon has two stable isotopes, carbon-12 and carbon-13.  
(C) Carbon forms covalent bonds rather than ionic bonds.  
(D) Carbon bonds to itself to form straight and branched chains and rings.
41. The hybridization of carbon atoms in alkanes is
- (A)  $\text{sp}^3\text{d}^2$  (B)  $\text{sp}^2$   
(C)  $\text{sp}^3$  (D)  $\text{sp}^3\text{d}$
42. The general formula for noncyclic alkene is
- (A)  $\text{C}_n\text{H}_{2n+2}$  (B)  $\text{C}_n\text{H}_{2n}$   
(C)  $\text{C}_n\text{H}_{2n-2}$  (D)  $\text{C}_n\text{H}_{n+2}$
43. Which one of the following is a secondary alcohol?
- (A)  $\text{CH}_3\text{CH}_2\text{OH}$  (B)  $\text{CH}_3\text{OH}$   
(C)  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$  (D)  $(\text{CH}_3)_3\text{COH}$

44. Which isotope below has the highest nuclear binding energy per gram?  
(No calculation necessary)
- (A)  ${}^4\text{He}$  (B)  ${}^{16}\text{O}$   
(C)  ${}^{12}\text{S}$  (D)  ${}^{55}\text{Mn}$
45. A Geiger-Muller tube is a
- (A) gas ionization detector (B) cloud chamber  
(C) fluorescence detector (D) photographic detector
46. The half life of  ${}^{231}\text{Pa}$  is  $3.25 \times 10^4$  years. How much of an initial 10.40 microgram sample remains after  $3.25 \times 10^5$  years?
- (A) 0.0102 micrograms (B) 0.240 micrograms  
(C) 2.18 micrograms (D) 0.0240 micrograms
47. When  ${}^{59}\text{Cu}$  undergoes positron emission, what is the immediate nuclear product?
- (A)  ${}^{59}\text{Ni}$  (B)  ${}^{58}\text{Ni}$   
(C)  ${}^{58}\text{Cu}$  (D)  ${}^{59}\text{Zn}$
48. A molecule that cannot be superimposed on its mirror image is said to exhibit which of the following?
- (A) Geometrical isomerism (B) Optical isomerism  
(C) Linkage isomerism (D) Coordination isomerism
49. In which of the following species does the transition metal ion have  $d^3$  electronic configuration?
- (A)  $[\text{Cr}(\text{NH}_3)_6]^{3+}$  (B)  $[\text{CoF}_6]^{3-}$   
(C)  $[\text{Co}(\text{OH}_2)_6]^{2+}$  (D)  $[\text{Fe}(\text{CN})_6]^{3-}$
50. Generation of antibody diversity in vertebrate animals takes place through
- (A) the presence of as many genes in the germ line as there are types of antibodies possible  
(B) infection with bacteria carrying antibody genes  
(C) infection with viruses carrying antibody genes  
(D) rearrangement of DNA in tissues that go on to produce antibodies
51. Zinc finger proteins and helix-turn-helix proteins are
- (A) types of DNA-binding proteins  
(B) involved in the control of translation  
(C) components of ribosomes  
(D) part of the hemoglobin in blood cells

52. In sickle cell anemia, the basis of the malfunction of the hemoglobin molecule is
- (A) faulty binding of the heme groups
  - (B) incorrect secondary structure
  - (C) substitution of a single amino acid
  - (D) increased affinity for oxygen
53. Rickets and Night blindness are caused due to the deficiency of
- (A) Vitamin D, C and A
  - (B) Vitamin B<sub>12</sub>, B<sub>6</sub> and C
  - (C) Vitamin B, D and A
  - (D) Vitamin B<sub>12</sub>, B<sub>6</sub> and A
54. Avogadro's constant (N<sub>A</sub>) is
- (A)  $60.22140857(74) \times 10^{23} \text{ mol}^{-1}$
  - (B)  $6.022140857(74) \times 10^{23} \text{ mol}^{-1}$
  - (C)  $0.6022140857(74) \times 10^{23} \text{ mol}^{-1}$
  - (D) None of the above
55. The plant with the smallest genome is
- (A) *Oryza sativa*
  - (B) *Vigna mungo*
  - (C) *Arabidopsis thaliana*
  - (D) *Nicotiana tabacum*
56. The chemical molecule that signals the symbiosis is a
- (A) Curcumin
  - (B) Flavonoid
  - (C) Cytochrome C
  - (D) Glycogen
57. The method of reproduction in pteridophytes is through
- (A) Seeds
  - (B) Spores
  - (C) Fruitlet
  - (D) Buds
58. Development of fruit without fertilization is called as
- (A) Apocorpy
  - (B) Polycorpy
  - (C) Parthenocarpy
  - (D) Syncorpy
59. Grafting is not possible in monocotyledons because they
- (A) have parallel bundles
  - (B) are herbaceous
  - (C) lack cambium
  - (D) have scattered vascular bundles
60. The process of photorespiration in plants leads to the
- (A) release of enhanced levels of CO<sub>2</sub>
  - (B) removal of waste metabolites
  - (C) lowering of the efficiency of photosynthetic carbon fixation
  - (D) enhanced plant biomass

61. Fluorescein diacetate is used to test pollen viability based on the activity of which one of the following enzymes?
- (A) Amylase (B) Esterase  
(C) Catalase (D) Decarboxylase
62. A red-fruited tomato plant was crossed with yellow colored fruit to produce 173 offsprings; 84 of which were yellow and 89 red. Determine the genotypes of parents.
- (A) 1:1 (B) 1:3  
(C) 1:3:3:1 (D) None of the above
63. Ribose has five carbon atoms, of which three are asymmetric. What is the maximum number of stereoisomers that may exist for ribose?
- (A) 2 (B) 6  
(C) 8 (D) 10
64. Which of the following types of plants operate the Hatch-Slack cycle?
- (A) C<sub>3</sub> plants (B) C<sub>4</sub> plants  
(C) Tropical grasses (D) Both (B) and (C)
65. Which vitamin is essential for blood clotting?
- (A) Vitamin D (B) Vitamin E  
(C) Vitamin K (D) Vitamin A
66. Phosphoric acid is tribasic with pK<sub>a</sub>'s of 2.14, 6.86 and 12.4. The ionic form that predominates at pH 3.2 is
- (A)  $H_3PO_4$  (B)  $H_2PO_4^-$   
(C)  $HPO_4^{2-}$  (D)  $PO_4^{3-}$
67. One of the following is a unique feature of mammalian body
- (A) Rib cage (B) Homeothermy  
(C) Four-chambered heart (D) Presence of diaphragm
68. Which of the following is absent according to Oparin, on the primitive surface of Earth?
- (A) CH<sub>4</sub> (B) O<sub>2</sub>  
(C) H<sub>2</sub> (D) H<sub>2</sub>O
69. An isotope of hydrogen with radioactivity below is
- (A) Protium (B) Deuterium  
(C) Titanium (D) Tritium





80. Initiation of hematopoiesis in adults occurs in the
- (A) Liver (B) Bone marrow  
(C) Kidney (D) Spleen
81. Which of the following amino acids has the maximum number of codons?
- (A) Leucine (B) Proline  
(C) Tryptophan (D) Glutamic acid
82. Which of the following is not an antigen presenting cell?
- (A) Dendritic cell (B) Macrophage  
(C) B lymphocyte (D) T lymphocyte
83. The circulating blood of a two month old breast-fed baby will contain maternal
- (A) IgA (B) IgD  
(C) IgE (D) IgG
84. Within chloroplasts, light is captured by
- (A) thylakoids within grana (B) grana within cisternae  
(C) cisternae within grana (D) grana within thylakoids
85. A blood group that has both A and B antigens but no antibodies is
- (A) A (B) AB  
(C) O (D) B
86. Pluripotent Embryonic stem cells are derived from
- (A) Inner cell mass of blastocyst (B) Trophectoderm cells  
(C) Foetal tissue (D) Foetal gonadal ridge
87. The portion of the brain which coordinates locomotory movements is
- (A) cerebrum (B) cerebellum  
(C) medulla oblongata (D) olfactory lobes
88. Proteins are "tagged" for degradation by cytosolic proteasomes through the covalent attachment of
- (A) Ubiquitin (B) Glutathione  
(C) Glucose (D) Clathrin
89. Binding of oxygen to haemoglobin follows
- (A) Sigmoidal binding curve (B) Parabolic binding curve  
(C) Hyperbolic binding curve (D) Linear binding curve

90. Paracrine signaling
- (A) targets only nearby cells
  - (B) targets cells located at distant sites
  - (C) acts within the same cell
  - (D) requires cell-cell contact
91. Haploid plant cultures are obtained from
- (A) Leaves
  - (B) Root tip
  - (C) Pollen grain
  - (D) Buds
92. Which one of the following is the most suitable example of a point mutation responsible for a genetic disease?
- (A) Down syndrome
  - (B) Turner syndrome
  - (C) Thalassemia
  - (D) Sickle cell anaemia
93. Dark bands of the G banded human chromosomes represent
- (A) euchromatin
  - (B) heterochromatin
  - (C) high copy number repeats
  - (D) low copy number repeats
94. People with Klinefelter syndrome have 47 chromosomes, including three sex chromosomes (XXY). What leads to this abnormal chromosome number?
- (A) Crossing over
  - (B) Nondisjunction
  - (C) Independent assortment
  - (D) Recombination
95. The correct sequence of spermatogenic stages in a mature human testes is
- (A) Spermatogonia-spermatocyte-spermatid-sperms
  - (B) Spermatid-spermatocyte-spermatogonia-sperms
  - (C) Spermatogonia-spermatid-spermatocyte-sperms
  - (D) Spermatocyte-spermatogonia-spermatid-sperms
96. In 2-D gel electrophoresis, the first dimension is based on the principle of
- (A) Isoelectric focusing
  - (B) Urea-PAGE
  - (C) SDS PAGE
  - (D) High voltage electrophoresis
97. Mitochondria are involved in the following except
- (A) ATP production
  - (B) Glycosylation
  - (C) Fatty acid biosynthesis
  - (D) TCA cycle

98. HeLa cell line is derived from which type of carcinoma?
- (A) lung (B) colon  
(C) cervical (D) brain
99. Anti-malarial function of quinine is mediated by
- (A) blocking the formation of hemoglobin in the host  
(B) blocking the formation of hemozoin in the parasite  
(C) triggering synthesis of hemoglobin in the host  
(D) triggering synthesis of hemozoin in the parasite
100. Which one of the following immunoglobulins is predominantly secreted in the milk?
- (A) IgG (B) IgM  
(C) IgA (D) IgE
101. The blastula stage in a mammalian embryo corresponds to
- (A) Blastocoel (B) Blastocyst  
(C) Blastopore (D) Blastoderm
102. The main product of glycolysis in skeletal muscles is
- (A) lactate (B) pyruvate  
(C)  $\alpha$ -ketoglutarate (D) succinate
103. Which of the following is not a part of a neuron?
- (A) synapse (B) axon  
(C) Nissl bodies (D) dendrite
104. Which of the following is responsible for formation of Polytene chromosomes?
- (A) Non-disjunction of chromatids during meiosis  
(B) Recombination of sister chromatids  
(C) Repeated replication without separation of sister chromatids  
(D) Recombination between adjacent chromatids
105. The buffering capacity of a buffer will be maximum when the pH is
- (A) lower to the pKa value  
(B) higher to the pKa value  
(C) very close to the pKa value  
(D) pH of the buffer is independent of its pKa value

106. Crossing over in diploid organism is responsible for
- (A) dominance of genes
  - (B) segregation of alleles
  - (C) recombination of linked genes
  - (D) linkage between genes
107. By adding SDS (Sodiumdodecyl sulfate) during the electrophoresis of proteins, it is possible to
- (A) determine a protein's isoelectric point
  - (B) determine the aminoacid composition of the protein
  - (C) preserve a protein's native structure and biological activity
  - (D) separate proteins exclusively on the basis of molecular weight
108. Dissolved solutes alter some physical (colligative) properties of the solvent water because they change the
- (A) concentration of the water
  - (B) hydrogen bonding of the water
  - (C) ionic bonding of the water
  - (D) pH of the water
109. Chemical substance used in industry for cold clearing, adhesives and vapor degreasing is
- (A) methyl chloroform
  - (B) carbon tetrachloride
  - (C) halons
  - (D) hydrocarbons
110. Etiolated plants are formed due to lack of
- (A) light
  - (B) Hg
  - (C) Fe
  - (D) Mg
111. The overall efficiency of the distillation column is
- (A) always more than the point efficiency
  - (B) the ratio of number of actual plates to ideal plates
  - (C) same as the Murphree efficiency
  - (D) the ratio of number of ideal plates to actual plates
112. Separation of two or more components of a liquid solution can not be achieved by
- (A) absorption
  - (B) evaporation
  - (C) liquid extraction
  - (D) fractional crystallization
113. Toxic agents present in food which interfere with thyroxine synthesis leads to the development of
- (A) toxic goiter
  - (B) cretinism
  - (C) simple goiter
  - (D) thyrotoxicosis

114. Iron bacteria can produce
- (A) slime (B) undesirable odors and tastes  
(C) Both (A) and (B) (D) extreme acidity
115. Which gas is used for artificial fruit ripening of green fruit?
- (A) ethylene (B) acetylene  
(C) ethane (D) methane
116. Commercial nitric acid is colored because it contains dissolved
- (A) oxygen (B) nitrous oxide  
(C) nitrogen di oxide (D) coloured impurities
117. Which of the following imparts deep blue color to glass?
- (A) Cobalt oxide (B) Cupric oxide  
(C) Phosphorus (D) Nickel oxide
118. The most common form of Sporotrichosis is
- (A) skeletal (B) mucosal  
(C) lymphocutaneous (D) visceral
119. Dermatophytes that do not attack nails are
- (A) Keratinomyces (B) Epidermophyton  
(C) Trichophyton (D) Microsporum
120. The adult or sexually mature stage of the parasite occurs in the
- (A) first intermediate host (B) final or definitive host  
(C) second intermediate host (D) insect vector
121. Nick translation is done by
- (A) DNA polymerase I (B) DNA polymerase II  
(C) DNA polymerase III (D) Kinase
122. The first vaccine developed from animal cell culture was
- (A) Hepatitis B vaccine (B) Influenza vaccine  
(C) Small pox vaccine (D) Polio vaccine

123. RFLP is used to
- (A) construct high resolution linkage maps
  - (B) identify single gene diseases
  - (C) construct QTL maps
  - (D) All of the above
124. The most common site for implantation in ectopic pregnancy is
- (A) internal site of the uterus
  - (B) mesentery
  - (C) ovary
  - (D) uterine tube
125. The following organs are derived from mesoderm except
- (A) skeletal musculature
  - (B) musculature blood vessels
  - (C) cardiac musculature
  - (D) suprarenal medulla
126. Which of the following molecule acts as Lewis acid?
- (A)  $(\text{CH}_3)_2\text{O}$
  - (B)  $(\text{CH}_3)_3\text{P}$
  - (C)  $(\text{CH}_3)_3\text{N}$
  - (D)  $(\text{CH}_3)_3\text{B}$
127. Identify the strong acid from among the following
- (A)  $\text{CH}\equiv\text{C}-\text{COOH}$
  - (B)  $\text{H}-\text{COOH}$
  - (C)  $\text{CH}_2=\text{CHCOOH}$
  - (D)  $\text{CH}_3-\text{CH}_2\text{COOH}$
128. Salicylic acid on heating with soda lime gives
- (A) Benzene
  - (B) Benzoic acid
  - (C) Phenol
  - (D) Toluene
129. Formation of equimolar mixture of sodium formate and methyl alcohol from formaldehyde in alkaline medium illustrates
- (A) Disproportionation reaction
  - (B) Oxidation reaction
  - (C) Reduction reaction
  - (D) Condensation reaction
130. The isomeric alkane which releases the least amount of energy when burnt is
- (A) n-Pentane
  - (B) isoheptane
  - (C) neoheptane
  - (D) 2,2,3-Dimethylbutane
131. Calcium benzoate on dry distillation gives
- (A) Benzophenone
  - (B) Benzaldehyde
  - (C) Benzoic acid
  - (D) Benzene

132. The compound having a P-H single bond is
- (A)  $\text{H}_3\text{PO}_4$  (B)  $\text{H}_4\text{P}_2\text{O}_7$   
(C)  $\text{H}_3\text{PO}_3$  (D)  $(\text{HPO}_3)_n$
133. The dissociation energy of the  $\text{O}_2^+$  is more than that of  $\text{O}_2$  molecule. This is due to
- (A) paramagnetic nature of  $\text{O}_2^+$   
(B) the positive charge carried by  $\text{O}_2^+$   
(C) the higher bond order in  $\text{O}_2^+$   
(D) stronger van der Waal's forces in  $\text{O}_2^+$
134. The compound that will behave as an acid in sulphuric acid is
- (A)  $\text{HNO}_3$  (B)  $\text{H}_2\text{O}$   
(C)  $\text{CH}_3\text{COOH}$  (D)  $\text{HClO}_4$
135. The number of bridging and non-bridging oxygen atoms present in  $\text{P}_4\text{O}_{10}$  are, respectively
- (A) 10 and 0 (B) 0 and 10  
(C) 6 and 4 (D) 4 and 6
136. A vascular bundle in an axis and its associated leaf traces is called as
- (A) Sympodium (B) Apodium  
(C) Polypodium (D) None of the above
137. The oldest group of algae with definite fossil remains in the form of stromatolites is
- (A) cyanophyta (B) cryptophyta  
(C) euglenophyta (D) glaucophyta
138.  $\alpha$ -amylase is obtained from
- (A) *Aspergillus oryzae* (B) *Trichoderma viride*  
(C) *Mucor miehei* (D) *Aspergillus niger*
139. Which of the following statement is true about sieve tube Cells?
- (A) Sieve tube cells are nucleated but devoid of mitochondria and ER  
(B) Companion cells are non-nucleated and are regulated by nucleated sieve cell  
(C) Sieve tube cells are present in all plants  
(D) Companion cells are nucleated and regulates activity of nonnucleated sieve tube cell



140. Filiform apparatus is characteristic of
- (A) egg (B) synergids  
(C) antipodal cells (D) anther wall
141. Syngenesious anthers and epipetalous stamens are found in
- (A) Liliaceae (B) Malvaceae  
(C) Solanaceae (D) Compositae
142. In which stage of development does a zygote go through the structural and functional specialization of groups of cells?
- (A) Growth (B) Differentiation  
(C) Morphogenesis (D) Fertilization
143. Long-chain fatty acids are oxidized step-wise in one carbon units starting from the
- (A) aliphatic end (B) carboxyl end  
(C) Both (A) and (B) (D) None of the above
144. When the stamens are fused throughout their whole length, they are termed as
- (A) Syngenesious (B) Connivent  
(C) Gynandrous (D) Synandrous
145. 'Whip tail' in cauliflower is caused due to the deficiency of
- (A) Boron (B) Molybdenum  
(C) Copper (D) Zinc
146. The kind of stomata generally found in the members of Solanaceae and Cruciferae are
- (A) Anomocytic (B) Anisocytic  
(C) Paracytic (D) Actinocytic
147. The soft wood in the plant kingdom comes from
- (A) *Aeschynomene indica* (B) *Ougenia dalbergioides*  
(C) *Ochroma lagopus* (D) *Erythrina suberosa*
148. The edible portion in mulberry comprises of
- (A) Pericarp (B) Meso- and endocarp  
(C) Endocarp only (D) Perianth
149. Stilt root is present in
- (A) Banyan (B) Rice  
(C) Sugarcane (D) Mango

150. *Spirogyra* reproduces asexually by

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|----------------------|-----------------|
| (A) Aplanospores     | (B) Cysts       |
| (C) Both (A) and (B) | (D) Hypnospores |

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