



91. The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are the ones categorized as:
- 1) Cyanobacteria
 - 2) Archaeobacteria
 - 3) Chemosynthetic autotrophs
 - 4) **Heterotrophic bacteria**
92. The cyanobacteria are also referred to as:
- 1) protists
 - 2) golden algae
 - 3) Slime moulds
 - 4) **Blue green algae**
93. Which statement is wrong for viruses.
- 1) All are parasites
 - 2) **All of them have helical symmetry**
 - 3) They have ability to synthesize nucleic acids and proteins
 - 4) Antibiotics have no effect on them
94. Which one single organism or the pair of organisms is correctly assigned to its taxonomic group.
- 1) Paramoecium and Plasmodium belong to the same kingdom as that of Penicillium
 - 2) Lichen is a composite organism formed from the symbiotic association of an algae and a protozoan
 - 3) **Yeast used in making bread and beer is a fungus**
 - 4) Nostoc and Anabaena are examples of Protista
95. Cycas and Adiantum resemble each other in having:
- 1) Seeds
 - 2) **Motile Sperms**
 - 3) Cambium
 - 4) Vessels
96. Which one of the following is a correct statement?
- 1) Pteridophyte gametophyte has a protonemal and leafy stage
 - 2) In gymnosperms female gametophyte is free-living
 - 3) Antheridiophores and archegoniophores are present in pteridophytes
 - 4) **Origin of seed habit can be traced in pteridophytes**

97. Which one of the following is common to multicellular fungi, filamentous algae and protonema of mosses:
- 1) Diplontic life cycle
 - 2) Members of kingdom plantae
 - 3) Mode of Nutrition
 - 4) **Multiplication by fragmentation**
98. In which one of the following the genus name, its two characters and its phylum are not correctly matched, whereas the remaining three are correct.

	Genus name	Two characters	Phylum
1)	Pila	(a) Body Segmented Mouth with radula	Mollusca
2)	Asterias	(b) Spiny7 skinned Water vascular system	Echinoermata
3)	Sycon	(c) Pore bearing Canal system	Porifera
4)	Periplaneta	(d) Jointed appendages Chitinous exoskeleton	Arthropoda

99. Placentation in tomato and lemon is:

- 1) Parietal
- 2) Free central
- 3) Marginal
- 4) **Axile**

100. Cymose inflorescence is present in :

- 1) **Solanum**
- 2) Sesbania
- 3) Trifolium
- 4) Brassica

101. Phyllode is present in:

- 1) Asparagus
- 2) Euphorbia
- 3) **Australian Acacia**
- 4) Opuntia

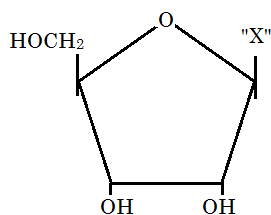
102. The gynoecium consists of many free pistils in flowers of:

- 1) Aloe
- 2) Tomato
- 3) Papaver
- 4) **Michelia**

103. How many plants in the list given below have composite fruits that develop from an inflorescence Walnut, poppy, radish, fig, pineapple, apple, tomato, mulberry:
- 1) Four
 - 2) Five
 - 3) Two
 - 4) **Three**
104. The coconut water and the edible part of coconut:
- 1) **Endosperm**
 - 2) Endocarp
 - 3) Mesocarp
 - 4) Embryo
105. Vexillary aestivation is characteristic of the family
- 1) **Fabaceae**
 - 2) Asteraceae
 - 3) Solanaceae
 - 4) Brassicaceae
106. The common bottle cork is a product of:
- 1) Dermatogen
 - 2) **Phellogen**
 - 3) Xylem
 - 4) Vascular Cambium
107. Companion cells are closely associated with:
- 1) **Sieve elements**
 - 2) Vessel elements
 - 3) Trichomes
 - 4) Guard cells
108. Closed vascular bundles lack:
- 1) Ground tissue
 - 2) Conjunctive tissue
 - 3) **Cambium**
 - 4) Pith
109. Water containing cavities in vascular bundles are found in:
- 1) Sunflower
 - 2) **Maize**
 - 3) Cycas
 - 4) Pinus

110. Gymnosperms are also called soft wood spermatophytes because they lack:
- 1) Cambium
 - 2) Phloem fibres
 - 3) Thick-walled tracheids
 - 4) **Xylem fibres**
111. Compared to those of humans, the erythrocytes in frog are:
- 1) Without nucleus but with haemoglobin
 - 2) **nucleated and with haemoglobin**
 - 3) very much smaller and fewer
 - 4) nucleated and without haemoglobin
112. Select the correct statement from the ones given below with respect to *Periplaneta Americana*.
- 1) Nervous system located dorsally, consists of segmentally arranged ganglia joined by a pair of longitudinal connectives.
 - 2) **Males bear a pair of short thread like anal styles**
 - 3) There are 16 very long Malpighian tubules present at the junctions of midgut and hindgut.
 - 4) Grinding of food is carried out only by the mouth parts.
113. Ribosomal RNA is actively synthesized in:
- 1) Lysosomes
 - 2) **Nucleolus**
 - 3) Nucleoplasm
 - 4) Ribosomes
114. Which one of the following does not differ in *E. coli* and *Chlamydomonas*:
- 1) Ribosomes
 - 2) Chromosomal Organization
 - 3) Cell wall
 - 4) **Cell membrane**
115. Nuclear membrane is absent in:
- 1) *Penicillium*
 - 2) *Agaricus*
 - 3) *Volvox*
 - 4) **Nostoc**
116. Select the correct statement from the following regarding cell membrane.
- 1) Na^+ and K^+ ions move across cell membrane by passive transport
 - 2) Proteins make up 60 to 70% of the cell membrane
 - 3) Lipids are arranged in a bilayer with polar heads towards the inner part.
 - 4) **Fluid mosaic model of cell membrane was proposed by Singer and Nicolson.**

117. Given below is the diagrammatic representation of one of the categories of small molecular weight organic compounds in the living tissues. Identify the category shown and the one blank component "X" in it.



	Category	Component
1)	Cholesterol	Guanin
2)	Amino acid	NH ₂
3)	Nucleotide	Adenine
4)	Nucleoside	Uracil

118. Which one is the most abundant protein in the animal world:

- 1) Trypsin
- 2) Haemoglobin
- 3) **Collagen**
- 4) Insulin

119. Which one out of A-D given below correctly represents the structural formula of the basic amino acid:

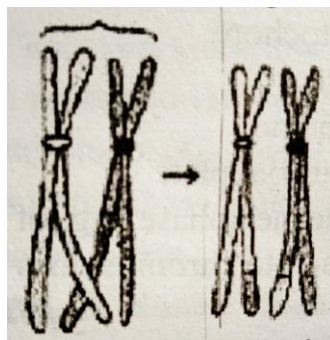
A	B	C	D
$\begin{array}{c} \text{NH}_2 \\ \\ \text{H}-\text{C}-\text{COOH} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{C} \\ / \quad \backslash \\ \text{O} \quad \text{OH} \end{array}$	$\begin{array}{c} \text{NH}_2 \\ \\ \text{H}-\text{C}-\text{COOH} \\ \\ \text{CH}_2 \\ \\ \text{OH} \end{array}$	$\begin{array}{c} \text{CH}_2\text{OH} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{NH}_2 \end{array}$	$\begin{array}{c} \text{NH}_2 \\ \\ \text{H}-\text{C}-\text{COOH} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{NH}_2 \end{array}$

- 1) C
- 2) **D**
- 3) A
- 4) B

120. During gamete formation, the enzyme recombinase participates during:

- 1) Metaphase I
- 2) Anaphase II
- 3) **Prophase I**
- 4) Prophase II

121. Given below is the representation of a certain event at a particular stage of a type of cell division. Which is this stage?



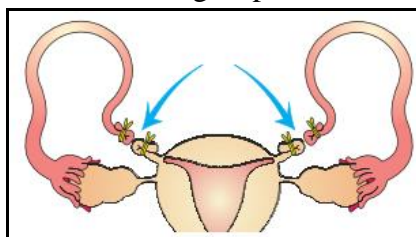
- 1) **Prophase I during meiosis**
 - 2) Prophase II during meiosis
 - 3) Prophase of Mitosis
 - 4) Both prophase and metaphase of mitosis
122. Best defined function of Manganese in green plants is:
- 1) **Photolysis of water**
 - 2) Calvin cycle
 - 3) Nitrogen fixation
 - 4) Water absorption
123. Which one of the following is correctly matched?
- 1) Passive transport of nutrients – ATP
 - 2) Apoplast – Plasmodesmata
 - 3) **Potassium – Readily immobilisation**
 - 4) Bakane of rice seedlings – F. Skoog
124. Which one of the following is wrong statement.
- 1) Anabaena and Nostoc are capable of fixing nitrogen in free living state also.
 - 2) Root nodule forming nitrogen fixers live as aerobes under free-living conditions.
 - 3) **Phosphorus is a constituent of cell membranes, certain nucleic acids and cell proteins.**
 - 4) Nitrosomonas and Nitrobacter are chemoautotrophs.
125. A process that makes important difference between C₃ and C₄ plants is:
- 1) Transpiration
 - 2) Glycolysis
 - 3) Photosynthesis
 - 4) **Photorespiration**

126. The correct sequence of cell organelles during photorespiration is:
- 1) Chloroplast – Golgibodies-mitochondria
 - 2) Chloroplast-Rough Endoplasmic reticulum, Dictyosomes
 - 3) **Chloroplast-peroxisome-mitochondria**
 - 4) Chloroplast-vacuole-peroxisome
127. Anxiety and eating spicy food together in an otherwise normal human, may lead to
- 1) **Indigestion**
 - 2) Jaundice
 - 3) Diarrhoea
 - 4) Vomiting
128. Which of following are the correct statement for respiration in human
- 1) Cigarette smoking may lead of inflammation of bronchi
 - 2) Neural signals from pneumotaxic centre in pons region of brain can increase the duration of inspiration
 - 3) **Workers in grinding and stone- breaking industries may suffer from lung fibrosis**
 - 4) About 90% of carbon dioxide (CO₂) is carried by haemoglobin as carbamino haemoglobin
129. The maximum amount of electrolytes and water (70 – 80 percent) from the glomerular filtrate is reabsorbed in which part of the nephron?
- 1) Ascending limb of loop of Henle
 - 2) Distal convoluted tubule
 - 3) **Proximal convoluted tubule**
 - 4) Descending limb of loop of Henle
130. Select the correct statement regarding the specific disorder of muscular or skeletal system:
- 1) Muscular dystrophy – age related shortening of muscles.
 - 2) **Osteoporosis – decrease in bone mase and higher chance of fractures with advancing age**
 - 3) Myasthenia gravis – Auto immune disorder which inhibits sliding of myosin filaments
 - 4) Gout – inflammation of joints due to extra deposition of calcium.
131. A person entering an empty room suddenly finds a snake right in front on opening the door. Which one of the following is likely to happen in his neuro-hormonal control system?
- 1) **Sympathetic nervous system is activated releasing epinephrine and norepinephrine from adrenal medulla.**
 - 2) Neurotransmitters diffuse rapidly across the cleft and transmit a nerve impulse
 - 3) Hypothalamus activates the parasympathetic division of brain.
 - 4) Sympathetic nervous system is activated releasing epinephrine and norepinephrin from adrenal cortex.

132. Which part of the human ear plays no role in hearing as such but is otherwise very much required?
- 1) Eustachian tube
 - 2) Organ of corti
 - 3) **Vestibular apparatus**
 - 4) Ear ossicles
133. The human hind brain comprises three parts, one of which is:
- 1) Spinal cord
 - 2) Corpus callosum
 - 3) **Cerebellum**
 - 4) Hypothalamus
134. F₂ generation in a Mendelian cross showed that both genotypic and phenotypic ratios are same as 1 : 2 : 1. It represents a case of:
- 1) Co-dominance
 - 2) Dihybrid cross
 - 3) Monohybrid cross with complete dominance
 - 4) **Monohybrid cross with incomplete dominance**
135. What is correct to say about the hormone action in humans
- 1) Glucagon is secreted by β - cells of islets of Langerhans and stimulates glycogenolysis
 - 2) Secretion of thymosins is stimulated with ageing
 - 3) **In females FSH first binds with specific receptors on ovarian cell membrane**
 - 4) FSH stimulates the secretion of estrogen and progesterone
136. Which one of the following pairs of hormones are the examples of those that can easily pass through the cell membrane of the target cell and bind to a receptor inside it (Mostly in the nucleus)
- 1) Insulin, glucagon
 - 2) Thyroxin, insulin
 - 3) Somatostain, oxytocin
 - 4) **Cortisol, testosterone**
137. Which one of the following is correctly matched.
- 1) **Onion – Bulb**
 - 2) Ginger – Sucker
 - 3) Chlamydomonas – Conidia
 - 4) Yeast – Zoospores
138. An organic substance that can withstand environmental extremes and cannot be degraded by any enzyme is:
- 1) Cuticle
 - 2) **Sporopollenin**
 - 3) Lignin
 - 4) Cellulose

139. Both, autogamy and geitonogamy are prevented in:
- 1) **Papaya**
 - 2) Cucumber
 - 3) Castor
 - 4) Maize
140. Even in absence of pollinating agents seed setting is assured in:
- 1) **Commellina**
 - 2) Zostera
 - 3) Salvia
 - 4) Fig
141. The Leydig cells found in the human body are the secretory source of :
- 1) Progesterone
 - 2) intestinal mucus
 - 3) glucagon
 - 4) **androgens**
142. In a normal pregnant woman, the amount of total gonadotropin activity was assessed. The result expected was.
- 1) High level of circulating FSH and LH in the uterus to stimulate implantation of the embryo
 - 2) High level of circulating HCG to stimulate endometrial thickening
 - 3) High level of FSH and LH in uterus to stimulate endometrical thickening
 - 4) **High level of circulating HCG to stimulate estrogen and progesterone synthesis**
143. Signals for parturition originate from:
- 1) **Both placenta as well as fully developed foetus**
 - 2) Oxytocin released from maternal pituitary
 - 3) Placenta only
 - 4) Fully developed foetus only
144. Which one of the following statements is false in respect of viability of mammalian sperm?
- 1) Sperm is viable for only up to 24 hours
 - 2) Survival of sperm depends on the pH of the medium and is more active in alkaline medium
 - 3) Viability of sperm is determined by its motility
 - 4) **Sperms must be concentrated in a thick suspension.**

145. What is the figure given below showing in particular?



- 1) Ovarian cancer
 - 2) Uterine cancer
 - 3) **Tubectomy**
 - 4) Vasectomy
146. The test-tube Baby Programme employs which one of the following techniques.
- 1) Intra cytoplasmic sperm injection (ICSI)
 - 2) Intra uterine insemination (IUI)
 - 3) Gamete intra fallopian transfer (GIET)
 - 4) **Zygote intra fallopian transfer (ZIFT)**
147. A certain road accident patient with unknown blood group needs immediate blood transfusion. His one doctor friend at once offers his blood. What was the blood group of the donor?
- 1) Blood group B
 - 2) Blood group AB
 - 3) **Blood group O**
 - 4) Blood group A
148. A normal – visioned man whose father was colour blind, marries a woman whose father was also colour blind. They have their first child as a daughter. What are the chance that this child would be colour blind?
- 1) 100%
 - 2) **zero percent**
 - 3) 25%
 - 4) 50%
149. Removal of RNA polymerase III from nucleoplasm will affect the synthesis of:
- 1) **t RNA**
 - 2) hn RNA
 - 3) m RNA
 - 4) r RNA
150. Which one of the following is not a part of a transcription unit in DNA?
- 1) **The inducer**
 - 2) A terminator
 - 3) A promoter
 - 4) The structural gene

151. If one strand of DNA has the nitrogenous base sequence at ATCTG, what would be the complementary RNA strand sequence.
- 1) TTAGU
 - 2) **UAGAC**
 - 3) AACTG
 - 4) ATCGU
152. Removal of introns and joining of exons in a defined order during transcription is called:
- 1) Looping
 - 2) Inducing
 - 3) Slicing
 - 4) **Splicing**
153. Evolution of different species in a given area starting from a point and spreading to other geographical areas is known as:
- 1) **Adaptive radiation**
 - 2) Natural selection
 - 3) Migration
 - 4) Divergent evolution

154. Which of the following options gives one correct example each of convergent evolution and divergent evolution?

	Convergent evolution	Divergent Evolution
1)	Eyes of octopus and mammals	Bones of forelimbs of vertebrates
2)	“Thorns of Bougainvillia and tendrils of Cucurbita”	Wings of butterflies and birds
3)	Bones of forelimbs of vertebrates	Wings of butterfly and birds
4)	“Thorns of Bougainvillia and tendrils of Cucurbita”	Eyes of Octopus and mammals

155. What was the most significant trend in the evolution of modern man (Homo sapiens) from his ancestors?
- 1) Shortening of jaws
 - 2) Binocular vision
 - 3) Increasing cranial capacity
 - 4) **Upright posture**
156. The extinct human who lived 1,00,000 to 40,000 years ago, in Europe, Asia and parts of Africa, With short stature, heavy eyebrows, retreating fore heads, large jaws with heavy teeth, stocky bodies a lumbering gait and stooped posture was:
- 1) Homo habilis
 - 2) **Neanderthal human**
 - 3) Cro-magnan humans
 - 4) Ramapithecus

157. Motile zygote of Plasmodium occurs in:

- 1) **Gut of female Anopheles**
- 2) Salivary glands of Anopheles
- 3) Human RBCs
- 4) Human liver

158. Widal Test is carried out to test:

- 1) Malaria
- 2) Diabetes mellitus
- 3) HIV/AIDS
- 4) **Typhoid fever**

159. Common cold differs from pneumonia in, that: **2012)**

- 1) Pneumonia is a communicable disease whereas the common cold is a nutritional deficiency disease.
- 2) Pneumonia can be prevented by a live attenuated bacterial vaccine whereas the common cold has no effective vaccine.
- 3) Pneumonia is caused by a virus while the common cold is caused by the bacterium Haemophilus influenza
- 4) **Pneumonia pathogen infects alveoli whereas the common cold affects nose and respiratory passage but not the lungs.**

160. Which one of the following is not a property of cancerous cells whereas the remaining three are?

- 1) They compete with normal cells for vital nutrients
- 2) They do not remain confined in the area of formation
- 3) They divide in an uncontrolled manner
- 4) **They show contactinhibition.**

161. In which one of the following options the two examples are correctly mated with their particular type of immunity.

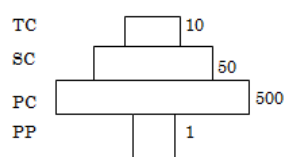
	Examples	Types of immunity
1)	Polymorphonuclear leukocytes and monocytes	Cellular barriers
2)	Anti-tetanus and anti snake bite injection	Active immunity
3)	Saliva in mouth and Tear in eyes	Physical barriers
4)	Mucus coating of epithelium lining the urinogenital tract-and the HCl in stomach	Physiological barriers

162. Cirrhosis of liver is caused by the chronic intake of:

- 1) Opium
- 2) **Alcohol**
- 3) Tobacco (Chewing)
- 4) Cocaine

163. Which part would be most suitable for raising virus-free plants for micro-propagation?
- 1) Bark
 - 2) Vascular tissue
 - 3) **Meristem**
 - 4) Node
164. Which one of the following is a case of wrong matching.
- 1) Somatic hybridization – Fusion of two diverse cells
 - 2) Vector DNA – Site for t-RNA synthesis.
 - 3) Micropropagation – in vitro production of plants in large numbers
 - 4) Callus – Unorganised mass of cell produced in tissue culture
165. *Monascus purpureus* is a yeast used commercially in the production of:
- 1) ethanol
 - 2) streptokinase for removing clots from the blood vessels
 - 3) Citric acid
 - 4) **blood cholesterol lowering statins**
166. A patient brought to a hospital with myocardial infarction is normally immediately given:
- 1) Penicillin
 - 2) **Streptokinase**
 - 3) Cyclosporin-A
 - 4) Statins
167. Which one of the following microbes forms symbiotic association with plants and helps them in their nutrition.
- 1) Azotobacter
 - 2) Aspergillus
 - 3) **Glomus**
 - 4) Trichoderma
168. Yeast is used in the production of:
- 1) Citric acid and lactic acid
 - 2) Lipase and pectinase
 - 3) **Bread and beer**
 - 4) Cheese and butter
169. A nitrogen-fixing microbe associated with *Azolla* in rice fields is:
- 1) Spirulina
 - 2) **Anabaena**
 - 3) Frankia
 - 4) Tolypothrix

170. Which one of the following is an example of carrying out biological control of pests/ diseases using microbes?
- 1) **Trichoderma sp. against certain plant pathogens**
 - 2) Nucleopolyhedrovirus against white rust in Brassica
 - 3) Bt- cotton to increase cotton yield
 - 4) Lady bird beetle against aphids in mustard
171. Maximum nutritional diversity is found in the group.
- 1) Fungi
 - 2) Animalia
 - 3) **Monera**
 - 4) Plantae
172. Pheretima and its close relatives derive nourishment from:
- 1) sugarcane roots
 - 2) **decaying fallen leaves and soil organic matter**
 - 3) soil insects
 - 4) small pieces of fresh fallen leaves of maize, etc.
173. Which one of the following is not a gaseous biogeochemical cycle in ecosystem?
- 1) Sulphur cycle
 - 2) Phosphorus cycle
 - 3) **Nitrogen cycle**
 - 4) Carbon cycle
174. Identify the possible link "A" in the following food chain:
Plant → insect – frog → "A" → Eagle
- 1) Rabbit
 - 2) Wolf
 - 3) **Cobra**
 - 4) Parrot
175. Given below is an imaginary pyramid of numbers. What could be one of the possibilities about certain organisms at some of the different levels?



- 1) **Level PC is "insects" and level SC is "small insectivorous birds"**
- 2) Level PP is "phytoplanktons" in sea and "Whale" on top level TC
- 3) Level one PP is "pipal trees" and the level SC is "sheep".
- 4) Level PC is "rats" and level SC is "cats"

176. Which one of the following is not a function of an ecosystem:
- 1) Energy flow
 - 2) Decomposition
 - 3) Productivity
 - 4) **Stratification**
177. The upright pyramid of number is absent in:
- 1) Pond
 - 2) **Forest**
 - 3) Lake
 - 4) Grassland
178. Which one of the following areas in India, is a hotspot of biodiversity.
- 1) Eastern Ghats
 - 2) Gangetic Plain
 - 3) Sunderbans
 - 4) **Western Ghats**
179. The highest number of species in the world is represented by:
- 1) **Fungi**
 - 2) Mosses
 - 3) Algae
 - 4) Lichens
180. Measuring Biochemical Oxygen Demand (BOD) is a method used for:
- 1) **estimating the amount of organic matter in sewage water.**
 - 2) working out the efficiency of oil driven automobile engines.
 - 3) measuring the activity of *Saccharomyces cerevisiae* in producing curd on a commercial scale.
 - 4) working out the efficiency of RBCs about their capacity to carry oxygen.