



Time: 90 Minutes.

Max. Marks: 360

Note:

* Every correct answer (+4 Mark)

* Every wrong answer (-1 Mark)

91. Which of the following endoparasites of humans does show viviparity ?
- 1) Enterobius vermicularis
 - 2) **Trichinella spiralis**
 - 3) Ascaris lumbricoides
 - 4) Ancylostoma duodenale
92. Cryopreservation of gametes of threatened species in viable and fertile condition can be referred to as:-
- 1) **Advanced ex-situ conservation of biodiversity**
 - 2) In situ conservation by sacred groves
 - 3) In situ cryo-conservation of biodiversity
 - 4) In situ conservation of biodiversity
93. Which one of the following matches is correct ?

1)	Alternaria	Sexual reproduction absent	Deuteromycetes
2)	Mucor	Reproduction by Conjugation	Ascomycetes
3)	Agaricus	Parasitic fungus	Basidiomycetes
4)	Phytophthora	Aseptate mycelium	Basidiomycetes

94. Minerals known to be required in large amounts for plant growth include :-
- 1) calcium, magnesium, manganese, copper
 - 2) potassium, phosphorus, selenium, boron
 - 3) magnesium, sulphur, iron, zinc
 - 4) **phosphorus, potassium, sulphur, calcium**
95. Which of the following enhances or induces fusion of protoplasts ?
- 1) **Polyethylene glycol and sodium nitrate**
 - 2) IAA and kinetin
 - 3) IAA and gibberellins
 - 4) Sodium chloride and potassium chloride
96. Which of these is not an important component of initiation of parturition in humans ?
- 1) Synthesis of prostaglandins
 - 2) Release of oxytocin
 - 3) **Release of prolactin**
 - 4) Increase in estrogen and progesterone ratio
97. In which of the following gametophyte is not independent free living ?
- 1) Marchantia
 - 2) Pteris
 - 3) **Pinus**
 - 4) Funaria
98. Which of the following is not a sexually transmitted disease ?
- 1) Acquired Immuno Deficiency Syndrome (AIDS)
 - 2) Trichomoniasis
 - 3) **Encephalitis**
 - 4) Syphilis

99. Leaves become modified into spines in :-
- 1) Pea
 - 2) Onion
 - 3) Silk Cotton
 - 4) **Opuntia**
100. Which one gives the most valid and recent explanation for stomatal movements ?
- 1) **Potassium influx and efflux**
 - 2) Starch hydrolysis
 - 3) Guard cell photosynthesis
 - 4) Transpiration
101. Which of the following had the smallest brain capacity ?
- 1) Homo sapiens
 - 2) Homo neanderthalensis
 - 3) **Homo habilis**
 - 4) Homo erectus
102. High value of BOD (Biochemical Oxygen Demand) indicates that :-
- 1) **Water is highly polluted**
 - 2) Water is less polluted
 - 3) Consumption of organic matter in the water is higher by the microbes
 - 4) Water is pure
103. Sliding filament theory can be best explained as :-
- 1) Actin and Myosin filaments shorten and slide pass each other
 - 2) **Actin and Myosin filaments do not shorten but rather slide pass each other**
 - 3) When myofilaments slide pass each other, Myosin filaments shorten while Actin filaments do not shorten
 - 4) When myofilaments slide pass each other Actin filaments shorten while Myosin filament do not shorten
104. A gymnast is able to balance his body upside down even in the total darkness because of :-
- 1) **Vestibular apparatus**
 - 2) Tectorial membrane
 - 3) Organ of corti
 - 4) Cochlea
105. A man with blood group 'A' marries a woman with blood group 'B'. What are all the possible blood groups of their offsprings ?
- 1) A,B and AB only
 - 2) **A,B,AB and O**
 - 3) O only
 - 4) A and B only
106. Typical growth curve in plants is :-
- 1) Linear
 - 2) Stair-steps shaped
 - 3) Parabolic
 - 4) **Sigmoid**

107. The UN Conference of Parties on climate change in the year 2011 was held in :-
- 1) South Africa
 - 2) Peru
 - 3) Qatar
 - 4) Poland
108. A technique of micropropagation is :-
- 1) Somatic embryogenesis
 - 2) Protoplast fusion
 - 3) Embryo rescue
 - 4) Somatic hybridization
109. How many pairs of contrasting characters in pea plants were studied by Mendel in his experiments ?
- 1) Six
 - 2) Eight
 - 3) Seven
 - 4) Five
110. $\oplus \overset{\curvearrowright}{\text{K}(5)} \overset{\curvearrowleft}{\text{C}(5)} \text{A}_5 \text{G}_{(2)}$ is the floral formula of :-
- 1) Sesbania
 - 2) Petunia
 - 3) Brassica
 - 4) Allium
111. The crops engineered for glyphosate are resistant/ tolerant to :-
- 1) Bacteria
 - 2) Insects
 - 3) Herbicides
 - 4) Fungi
112. Which of the following statements is not correct?
- 1) Goblet cells are present in the mucosa of intestine and secrete mucus
 - 2) Oxyntic cells are present in the mucosa of stomach and secrete HCl.
 - 3) Acini are present in the pancreas and secrete carboxypeptidase
 - 4) Brunner's glands are present in the submucosa of stomach and secrete pepsinogen
113. In sea urchin DNA, which is double stranded, 17% of the bases were shown to be cytosine. The percentages of the other three bases expected to be present in this DNA are
- 1) G 17%, A 16.5%, T 32.5%
 - 2) G 17%, A 33%, T 33%
 - 3) G 8.5%, A 50%, T 24.5%
 - 4) G 34%, A 24.5%, T 24.5%
114. In Bt cotton, the Bt toxin present in plant tissue as pro-toxin is converted into active toxin due to :-
- 1) Acidic pH of the insect gut
 - 2) Action of gut micro-organisms
 - 3) Presence of conversion factors in insect gut
 - 4) Alkaline pH of the insect gut

115. Cytochromes are found in :-
- 1) Outer wall of mitochondria
 - 2) **Cristae of mitochondria**
 - 3) Lysosomes
 - 4) Matrix of mitochondria
116. Read the following five statements (A to E) and select the option with all correct statements:
- (A) Mosses and Lichens are the first organisms to colonise a bare rock.
(B) Selaginella is a homosporous pteridophyte
(C) Coralloid roots in Cycas have VAM
(D) Main plant body in bryophytes is gametophytic, whereas in pteridophytes it is sporophytic
(E) In gymnosperms, male and female gametophytes are present within sporangia located on sporophyte
- 1) (B), (C) and (D)
 - 2) **(A), (D) and (E)**
 - 3) (B), (C) and (E)
 - 4) (A), (C) and (D)
117. Which one of the following is correct ?
- 1) Serum = Blood + Fibrinogen
 - 2) Lymph = Plasma + RBC + WBC
 - 3) **Blood = Plasma + RBC + WBC**
 - 4) Plasma = Blood - Lymphocytes
118. The movement of a gene from one linkage group to another is called :-
- 1) Duplication
 - 2) **Translocation**
 - 3) Crossing over
 - 4) Inversion
119. Which body of the Government of India regulates GM research and safety of introducing GM organisms for public services ?
- 1) Indian Council of Agricultural Research
 - 2) **Genetic Engineering Approval Committee**
 - 3) Research Committee on Genetic Manipulation
 - 4) Bio-safety committee
120. Rachel Carson's famous book "Silent Spring" is related to :-
- 1) Noise pollution
 - 2) Population explosion
 - 3) Ecosystem management
 - 4) **Pesticide pollution**
121. Gastric juice of infants contains :-
- 1) nuclease, pepsinogen, lipase
 - 2) **pepsinogen, lipase, rennin**
 - 3) amylase, rennin, pepsinogen
 - 4) maltase, pepsinogen, rennin

122. Which of the following is not one of the prime health risks associated with greater UV radiation through the atmosphere due to depletion of stratospheric ozone ?
- 1) Reduced Immune System
 - 2) Damage to eyes
 - 3) **Increased liver cancer**
 - 4) Increased skin cancer
123. Capacitation refers to changes in the :-
- 1) Ovum before fertilization
 - 2) Ovum after fertilization
 - 3) Sperm after fertilization
 - 4) **Sperm before fertilization**
124. Most animals are tree dwellers in a:-
- 1) Thorn woodland
 - 2) Temperate deciduous forest
 - 3) **Tropical rain forest**
 - 4) Coniferous forest
125. True nucleus is absent in :-
- 1) Mucor
 - 2) Vaucheria
 - 3) Volvox
 - 4) **Anabaena**
126. Glenoid cavity articulates :-
- 1) Scapula with acromion
 - 2) Clavicle with scapula
 - 3) **Humerus with scapula**
 - 4) Clavicle with acromion
127. Transmission tissue is characteristic feature of :-
- 1) **Solid style**
 - 2) Dry stigma
 - 3) Wet stigma
 - 4) Hollow style
128. DNA is not present in :-
- 1) **Ribosomes**
 - 2) Nucleus
 - 3) Mitochondria
 - 4) Chloroplast
129. Gene regulation governing lactose operon of E.coli that involves the lac I gene product is :
- 1) **Negative and inducible because repressor protein prevents transcription**
 - 2) Negative and repressible because repressor protein prevents transcription
 - 3) Feedback inhibition because excess of β -galactosidase can switch off transcription
 - 4) Positive and inducible because it can be induced by lactose

130. Which of the following does not favour the formation of large quantities of dilute urine ?

- 1) Caffeine
- 2) **Renin**
- 3) Atrial-natriuretic factor
- 4) Alcohol

131. What causes a green plant exposed to the light on only one side, to bend toward the source of light as it grows ?

- 1) Green plants seek light because they are phototropic
- 2) Light stimulates plant cells on the lighted side to grow faster
- 3) **Auxin accumulates on the shaded side, stimulating greater cell elongation there.**
- 4) Green plants need light to perform photosynthesis

132. Nuclear envelope is a derivative of :-

- 1) Membrane of Golgi complex
- 2) Microtubules
- 3) **Rough endoplasmic reticulum**
- 4) Smooth endoplasmic reticulum

133. Select the correct option :-

	I		II
(a)	Synapsis aligns homologous chromosomes	(i)	Anaphase-II
(b)	Synthesis of RNA and protein	(ii)	Zygotene
(c)	Action of enzyme recombinase	(iii)	G ₂ -phase
(d)	Centromeres do not separate but chromatids move towards opposite poles	(iv)	Anaphase-I
		(v)	Pachytene

- | | (a) | (b) | (c) | (d) |
|----|------|-------|-------|------|
| 1) | (ii) | (iii) | (v) | (iv) |
| 2) | (i) | (ii) | (v) | (iv) |
| 3) | (ii) | (iii) | (iv) | (v) |
| 4) | (ii) | (i) | (iii) | (iv) |

134. Keel is the characteristic feature of flower of :-

- 1) **Indigofera**
- 2) Aloe
- 3) Tomato
- 4) Tulip

135. Perigynous flowers are found in :-

- 1) Cucumber
- 2) China rose
- 3) **Rose**
- 4) Guava

136. A chemical signal that has both endocrine and neural roles is ?
- 1) Calcitonin
 - 2) **Epinephrine**
 - 3) Cortisol
 - 4) Melatonin
137. In which of the following both pairs have correct combination :-
- 1) In situ conservation : Cryopreservation
Ex situ conservation : Wildlife Sanctuary
 - 2) In situ conservation : Seed Bank
Ex situ conservation : National Park
 - 3) In situ conservation : Tissue culture
Ex situ conservation : Sacred groves
 - 4) **In situ conservation : National Park**
Ex situ conservation : Botanical Garden
138. HIV that causes AIDS, first starts destroying:
- 1) Leucocytes
 - 2) Helper T- Lymphocytes
 - 3) Thrombocytes
 - 4) B- Lymphocytes
139. Hysterectomy is surgical removal of :
- 1) Prostate gland
 - 2) Vas-deference
 - 3) Mammary glands
 - 4) **Uterus**
140. Removal of proximal convoluted tubule from the nephron will result in:
- 1) More concentrated urine
 - 2) No change in quality and quantity of urine
 - 3) No urine formation
 - 4) **More diluted urine**
141. A major characteristic of the monocot root is the presence of :
- 1) Scattered vascular bundles
 - 2) **Vasculature without cambium**
 - 3) Cambium sandwiched between phloem and xylem along the radius
 - 4) Open vascular bundles
142. Which of the following characteristics is mainly responsible for diversification of insects on land ?
- 1) Bilateral symmetry
 - 2) **Exoskeleton**
 - 3) Eyes
 - 4) Segmentation
143. Which of the following cells during gametogenesis is normally diploid?
- 1) Spermatid
 - 2) **Spermatogonia**
 - 3) Secondary polar body
 - 4) Primary polar body

144. The structures that are formed by stacking of organized flattened membranous sacs in the chloroplasts are :
- 1) **Grana**
 - 2) Stroma lamellae
 - 3) Stroma
 - 4) Cristae
145. The chromosomes in which centromere is situated close to one end are:
- 1) **Acrocentric**
 - 2) Telocentric
 - 3) Sub-metacentric
 - 4) Metacentric
146. In a ring girdled plant:
- 1) **The root dies first**
 - 2) The shoot and root die together
 - 3) Neither root nor shoot will die
 - 4) The shoot dies first
147. Vertical distribution of different species occupying different levels in a biotic community is known as:
- 1) **Stratification**
 - 2) Zonation
 - 3) Pyramid
 - 4) Divergence
148. Multiple alleles are present :
- 1) At different loci on the same chromosome
 - 2) **At the same locus of the chromosome**
 - 3) On non-sister chromatids
 - 4) On different chromosomes
149. The mass of living material at a trophic level at a particular time is called :
- 1) Standing state
 - 2) Net primary productivity
 - 3) **Standing crop**
 - 4) Gross primary productivity
150. Which of the following animals is not viviparous?
- 1) Elephant
 - 2) **Platypus**
 - 3) Whale
 - 4) Flying fox (Bat)
151. In an ecosystem the rate of production of organic matter during photosynthesis is termed as:
- 1) **Gross primary productivity**
 - 2) Secondary productivity
 - 3) Net productivity
 - 4) Net primary productivity

152. Erythropoiesis starts in :
- 1) Liver
 - 2) Spleen
 - 3) **Red bone marrow**
 - 4) Kidney
153. Which is the most common mechanism of genetic variation in the population of sexually reproducing organism?
- 1) Chromosomal aberrations
 - 2) Genetic drift
 - 3) **Recombination**
 - 4) Transduction
154. Blood pressure in the mammalian aorta is maximum during :
- 1) Diastole of the right ventricle
 - 2) **Systole of the left ventricle**
 - 3) Diastole of the right atrium
 - 4) Systole of the left atrium
155. When you hold your breath, which of the following gas changes in blood would first lead to the urge to breathe?
- 1) **rising CO₂ concentration**
 - 2) falling CO₂ concentration
 - 3) rising CO₂ and falling O₂ concentration
 - 4) falling O₂ concentration
156. Vascular bundles in monocotyledons are considered closed because:
- 1) **Cambium is absent**
 - 2) There are no vessels with perforations
 - 3) Xylem is surrounded all around by phloem
 - 4) A bundle sheath surrounds each bundle
157. Male gametes are flagellated in :
- 1) Anabaena
 - 2) **Ectocarpus**
 - 3) Spirogyra
 - 4) Polysiphonia
158. Which one of the following may require pollinators, but is genetically similar to autogamy ?
- 1) Xenogamy
 - 2) Apogamy
 - 3) Cleistogamy
 - 4) **Geitonogamy**
159. In ginger vegetative propagation occurs through:
- 1) Offsets
 - 2) Bulbils
 - 3) Runners
 - 4) **Rhizome**

160. Which one of the following is not an inclusion body found in prokaryotes ?

- 1) Cyanophycean granule
- 2) Glycogen granule
- 3) **Polysome**
- 4) Phosphate granule

161. A somatic cell that has just completed the S phase of its cell cycle, as compared to gamete of the same species, has :

- 1) same number of chromosomes but twice the amount of DNA
- 2) **twice the number of chromosomes and four times the amount of DNA**
- 3) four times the number of chromosomes and twice the amount of DNA
- 4) twice the number of chromosomes and twice the amount of DNA

162. Alleles are :

- 1) true breeding homozygotes
- 2) **different molecular forms of a gene**
- 3) heterozygotes
- 4) different phenotype

163. Select the correct matching in the following pairs:

- 1) **Smooth ER – Synthesis of lipids**
- 2) Rough ER– Synthesis of glycogen
- 3) Rough ER – Oxidation of fatty acids
- 4) Smooth ER – Oxidation of phospholipids

164. The terga, sterna and pleura of cockroach body are joined by :

- 1) Muscular tissue
- 2) **Arthrodiol membrane**
- 3) Cartilage
- 4) Cementing glue

165. Which of the following represents the correct combination without any exception?

1)	Mouth ventral, gills without operculum; skin with placoid scales; persistent notochord	Chondrichthyes
2)	Sucking and circular mouth; jaws absent, integument without scales; paired appendages	Cyclostomata
3)	Body covered with feathers; skin moist and glandular; fore-limbs form wings; lungs with air sacs	Aves
4)	Mammary gland; hair on body; pinnae; two pairs of Limbs	Mammalia

166. Which one of the following statements is incorrect?

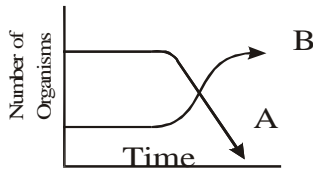
- 1) In competitive inhibition, the inhibitor molecule is not chemically changed by the enzyme.
- 2) The competitive inhibitor does not affect the rate of breakdown of the enzyme-substrate complex.
- 3) **The presence of the competitive inhibitor decreases the K_m of the enzyme for the substrate.**
- 4) A competitive inhibitor reacts reversibly with the enzyme to form an enzyme-inhibitor complex.

167. Which of the following regions of the brain is incorrectly paired with its function?
- 1) **Cerebellum- language comprehension**
 - 2) Corpus callosum-communication between the left and right cerebral cortices
 - 3) Cerebrum- calculation and contemplation
 - 4) Medulla oblongata - homeostatic control
168. Which one of the following statements is not true?
- 1) Pollen grains of some plants cause severe allergies and bronchial afflictions in some people
 - 2) The flowers pollinated by flies and bats secrete foul odour to attract them
 - 3) **Honey is made by bees by digesting - pollen collected from flowers**
 - 4) Pollen grains are rich in nutrients, and they are used in the form of tablets and syrups
169. The active form of Entamoeba histolytica feeds upon:
- 1) mucosa and submucosa of colon only
 - 2) food in intestine
 - 3) blood only
 - 4) **erythrocytes; mucosa and submucosa of colon**
170. Which of the following viruses is not transferred through semen of an infected male?
- 1) Human immunodeficiency virus
 - 2) **Chikungunya virus**
 - 3) Ebola virus
 - 4) Hepatitis B virus
171. A population will not exist in Hardy - Weinberg equilibrium if :
- 1) There are no mutations
 - 2) There is no migration
 - 3) The population is large
 - 4) **Individuals mate selectively**
172. The guts of cow and buffalo possess:
- 1) Chlorella spp.
 - 2) **Methanogens**
 - 3) Cyanobacteria
 - 4) Fucus spp.
173. The hilum is a scar on the :
- 1) Fruit, where it was attached to pedicel
 - 2) Fruit, where style was present
 - 3) Seed, where micropyle was present
 - 4) **Seed, where funicle was attached**
174. Secondary Succession takes place on/in :
- 1) **Degraded forest**
 - 2) Newly created pond
 - 3) Newly cooled lava
 - 4) Bare rock

175. Which one of the following statements is wrong?

- 1) Agar - agar is obtained from Gelidium and Gracilaria
- 2) Chlorella and Spirulina are used as space food
- 3) **Mannitol is stored food in Rhodophyceae**
- 4) Algin and carragen are products of algae

176. The following graph depicts changes in two populations (A and B) of herbivores in a grassy field A possible reason for these changes is that:



- 1) **Population B competed more successfully for food than population A**
- 2) Population A produced more offspring than population B
- 3) Population A consumed the members of population B
- 4) Both plant populations in this habitat decreased

177. Match each disease with its correct type of vaccine:

(a)	tuberculosis	(i)	harmless virus
(b)	whooping cough	(ii)	inactivated toxin
(c)	diphtheria	(iii)	killed bacteria
(d)	polio	(iv)	harmless bacteria

- | | | | | |
|----|-------------|--------------|-------------|------------|
| | (a) | (b) | (c) | (d) |
| 1) | (iii) | (ii) | (iv) | (i) |
| 2) | (iv) | (iii) | (ii) | (i) |
| 3) | (i) | (ii) | (iv) | (iii) |
| 4) | (ii) | (i) | (iii) | (iv) |

178. Which of the following are the important floral rewards to the animal pollinators?

- 1) **Nectar and pollen grains**
- 2) Floral fragrance and calcium crystals
- 3) Protein pellicle and stigmatic exudates
- 4) Colour and large size flower

179. An abnormal human baby with 'XXX' sex chromosomes was born due to :

- 1) **formation of abnormal ova in the mother**
- 2) fusion of two ova and one sperm
- 3) fusion of two sperms and one ovum
- 4) formation of abnormal sperms in the father

180. Transpiration and root pressure cause water to rise in plants by :

- 1) **Pulling and pushing it, respectively**
- 2) Pushing it upward
- 3) Pushing and pulling it, respectively
- 4) Pushing it upward