



...gateway to medical school

NEET : 2022 (SOLUTION)**Time: 90 Minutes.****Version Q6****Max. Marks: 360****Note:**

- * Every correct answer (+4 Mark)
- * Every wrong answer (-1 Mark)
- * Not attempted question (0 Mark)

BOTANY

101. Give below are two statements:

Statement I: Sickle cell anaemia and Haemophilia are autosomal dominant traits.**Statement II:** Sickle cell anaemia and Haemophilia are disorders of the blood.

In the light of the above statements, choose the correct answer from the options given below:

- 1) **Statement is incorrect but Statement II**
- 2) Both Statement I and Statement II are correct
- 3) Both Statement I and Statement II are incorrect
- 4) Statement I is correct but Statement II is incorrect

102. Which stage of meiosis can last for months or years in the oocytes of some vertebrates?

- 1) Diakinesis
- 2) Leptotene
- 3) Pachytene
- 4) **Diplotene**

103. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A): When a particular restriction enzyme cuts strand of DNA, overhanging stretches or sticky ends are formed.**Reason (R):** Some restriction enzymes cut the strand of DNA a little away from the centre of the palindromic site.

In the light of the above statements, choose the correct answer from the options given below.

- 1) (A) is not correct but (R) is correct
- 2) **Both (A) and (R) are correct and (R) is the correct explanation of (A)**
- 3) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
- 4) (A) is correct but (R) is not correct

104. Give the correct descending order of organisms with reference to their estimated number found in Amazon forest.

- (a) Plants
- (b) Invertebrates
- (c) Fishes
- (d) Mammals
- (e) Birds

Choose the correct answer from the options given below

- 1) **(b) > (a) > (c) > (e) > (d)**
- 2) (a) > (b) > (e) > (d) > (c)
- 3) (a) > (c) > (d) > (b) > (e)
- 4) (b) > (a) > (e) > (d) > (c)

105. In lac operon, z gene codes for:

- 1) Transacetylase 2) **β -galactosidase** 3) Permease 4) Repressor

106. The 5 – C compound formed during TCA cycle is:

- 1) Fumaric acid 2) **α – ketoglutaric acid**
3) Oxalo succinic acid 4) Succinic acid

107. In meiosis, crossing over and exchange of material between homologous chromosomes catalyzed by the enzyme:

- 1) Polymerase 2) Phosphorylase 3) **Recombinase** 4) Transferase

108. All successions irrespective of the habitat proceed to which type of climax community?

- 1) Edaphic 2) Xeric 3) **Mesic** 4) Hydrophytic

109. When a carrier protein facilitates the movement of two molecules across the membrane in same direction, it is called:

- 1) **Symport** 2) Uniport 3) Transport 4) Antiport

110. When one CO₂ molecule is fixed as one molecule of triose phosphate, which of the following photochemically made, high energy chemical intermediates are used in the reduction phase?

- 1) 2 ATP + 2 NADPH 2) 1 ATP + 1 NADPH
3) 1 ATP + 2 NADPH 4) **2 ATP + 1 NADPH**

111. The ability of plants to follow different pathways in response to environment leading to formation of different kinds of structures is called:

- 1) Differentiation 2) Redifferentiation
3) Development 4) **Plasticity**

112. Match List I with List II:

	List I		List II
(a)	<i>Chlamydomonas</i>	(i)	Moss
(b)	<i>Cycas</i>	(ii)	Pteridophyte
(c)	<i>Selaginella</i>	(iii)	Alga
(d)	<i>Sphagnum</i>	(iv)	Gymnosperm

Choose the correct answer for the options given below:

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

113. Interfascicular cambium is present between:
- 1) Secondary xylem and secondary phloem
 - 2) Primary xylem and primary phloem
 - 3) Pericycle and endodermis Two vascular bundles
 - 4) **Two vascular bundles**
114. Which of the following growth regulators is an adenine derivative?
- 1) Abscisic acid
 - 2) Auxin
 - 3) **Cytokinin**
 - 4) Ethylene
115. The chromosomal theory of inheritance was proposed by:
- 1) Robert Brown
 - 2) Thomas Morgan
 - 3) **Sutton and Boveri**
 - 4) Gregor Mendel
116. Which of the following statements is not correct?
- 1) The rhizome is thick, prostrate and branched
 - 2) Rhizome is a condensed form of stem
 - 3) The apical bud in rhizome always remains above the ground
 - 4) **The rhizome is aerial with no distinct nodes and internodes.**
117. The phenomenon by which the undividing parenchyma cells start to divide mitotically during plant tissue culture is called as:
- 1) Secondary growth
 - 2) Differentiation
 - 3) Dedifferentiation
 - 4) Redifferentiation
118. Match List I with List II:

	List I		List II
(a)	Adenine	(i)	Pigment
(b)	Anthocyanin	(ii)	Polysaccharide
(c)	Chitin	(iii)	Alkaloid
(d)	Codeine	(iv)	Purine

Choose the correct answer for the options given below:

- 1) (a) – (i), (b) – (iv), (c) – (iii), (d) – (ii)
- 2) **(a) – (iv), (b) – (i), (c) – (ii), (d) – (iii)**
- 3) (a) – (iv), (b) – (iii), (c) – (ii), (d) – (i)
- 4) (a) – (iii), (b) – (i), (c) – (iv), (d) – (ii)

119. The residual persistent part which forms the perisperm in the seeds of beet is:
- 1) Integument
 - 2) Calyx
 - 3) Endosperm
 - 4) **Nucellus**
120. The World Summit on sustainable development held in 2002 in Johannesburg, South Africa pledged for:
- 1) Collection and preservation of seeds of different genetic strains of commercially important plants.
 - 2) **A significant reduction in the current rate of biodiversity loss.**
 - 3) Declaration of more biodiversity hotspots.
 - 4) Increase in agricultural production.
121. The type of tissue commonly found in the fruit wall of nuts is:
- 1) **Sclereid**
 - 2) Parenchyma
 - 3) Collenchyma
 - 4) Sclerenchyma
122. The pioneer species in a hydrarch succession are:
- 1) Filamentous algae
 - 2) Free-floating angiosperms
 - 3) Submerged rooted plants
 - 4) **Phytoplanktons**
123. Which of the following protects nitrogenase inside the root nodule of a leguminous plant?
- 1) Glutamate dehydrogenase
 - 2) Catalase
 - 3) leg haemoglobin
 - 4) Transaminase
124. Given below are two statements.
- Statement I:** DNA polymerases catalyses polymerization only in one direction, that is 5' → 3'.
- Statement II:** During replication DNA, on one strand the replication is continuous while on the other strand it is discontinuous.
- In the light of the above statements, choose the correct answer from the options given below.
- 1) Statement I is incorrect but Statement II is correct
 - 2) **Both Statement I and Statement II are correct**
 - 3) Both Statement I and Statement II are incorrect
 - 4) Statement I is correct but Statement II is incorrect
125. The species that come to appear in bare area are called:
- 1) Species of seral community
 - 2) **Pioneer species**
 - 3) Invasive species
 - 4) Competitive species

126. Initiation of lateral roots and vascular cambium during secondary growth takes place in cells of:

- 1) **Pericycle**
- 2) Epiblema
- 3) Cortex
- 4) Endodermis

127. Match List – I with List – II

	Column I		Column II
(a)	In lac operon I gene codes for	(i)	Transacetylase
(b)	In lac operon z gene codes for	(ii)	Permease
(c)	In lac operon y gene codes for	(iii)	β -galactosidase
(d)	In lac operon a gene codes for	(iv)	Repressor

Choose the correct answer from the options give below

- 1) (a) – (iii), (b) – (i), (c) – (iv), (d) – (ii)
- 2) (a) – (iii), (b) – (ii), (c) – (i), (d) – (iv)
- 3) (a) – (iv), (b) – (iii), (c) – (ii), (d) – (i)**
- 4) (a) – (i), (b) – (i), (c) – (iii), (d) – (ii)

128. To ensure that only the desired pollens fall on the stigma in artificial hybridization process.

- (a) the female flower buds of plant producing unisexual flowers need not be bagged.
- (b) there is no need to emasculate unisexual flowers of selected female parent
- (c) emasculated flowers are to be bagged immediately after cross pollination
- (d) emasculated flowers are to be bagged after removal of anthers bisexual flowers, showing protogyny are never selected for cross.

Choose the correct answer from the options given below:

- 1) (a), (d) and (e) only
- 2) (a), (b) and (c) only
- 3) (b), (c) and (d) only**
- 4) (b), (c) and (e) only

129. The ascent of xylem sap in plants is mainly accomplished by the:

- 1) root pressure
- 2) size of the stomatal aperture
- 3) distribution of stomata on the upper and lower epidermis
- 4) cohesion and adhesion between water molecules.**

130.

	List I		List II
(a)	Imbricate	(i)	Calotropis
(b)	Valvate	(ii)	Cassia
(c)	Vexillary	(iii)	Cotton
(d)	Twisted	(iv)	Bean

Choose the correct answer from the options give below

- 1) (a) – (i), (b) – (iii), (c) – (iv), (d) – (ii)
- 2) (a) – (ii), (b) – (i), (c) – (iii), (d) – (iv)
- 3) (a) – (ii), (b) – (i), (c) – (iv), (d) – (iii)**
- 4) (a) – (ii), (b) – (iv), (c) – (iii), (d) – (i)

131. The number of time(s) decarboxylation of isocitrate occurs during single TCA cycle is:

- 1) Four
- 2) **One**
- 3) Two
- 4) Three

132. Match List I with List II.

	List I		List II
(a)	Porins	(i)	Pink coloured nodules
(b)	Leg haemoglobin	(ii)	Lumen of thylakoid
(c)	H ⁺ accumulation	(iii)	Amphibolic pathway
(d)	Respiration	(iv)	Huge pores in outer membrane of mitochondira

Choose the correct answer from the options give below

- 1) (a) – (ii), (b) – (iv), (c) – (i), (d) – (iii)
- 2) (a) – (ii), (b) – (i), (c) – (iv), (d) – (iii)
- 3) (a) – (iv), (b) – (i), (c) – (ii), (d) – (iii)**
- 4) (a) – (iii), (b) – (iv), (c) – (ii), (d) – (i)

133. Separation of DNA fragments is done by a technique known as:

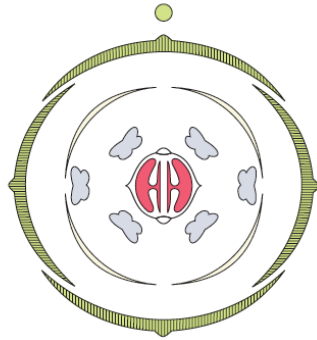
- 1) Gel electrophoresis**
- 2) Polymerase Chain Reaction
- 3) Recombinant technology
- 4) Southern blotting

134. In general the egg apparatus of embryo sac in angiosperm consists of:

- 1) One egg cell, two synergids, two antipodal, cells, two Polar nuclei
- 2) One egg cell, two synergids, three antipodal cells, two Polar nuclei
- 3) One egg cell, two synergids, two antipodal cells, three Polar nuclei
- 4) One egg cell, three synergids, two antipodal cells, two Polar nuclei

Ans (0) N/A

135. The Floral Diagram represents which one of the following families.



- 1) Liliaceae 2) Fabaceae
3) **Brassicaceae** 4) Solanaceae

BOTANY SECTION B (Q 136 TO 150)

136. Primary proteins are also called as polypeptides because:

- 1) They can assume many conformations
2) They are linear chains
3) They are polymers of peptide monomers
4) **Successive amino acids are joined by peptide bonds.**

137. Match List I with List II

	List I		List II
(a)	Bacteriophage ϕ x 174	(i)	48502 base pairs
(b)	Bacteriophage Lambda	(ii)	5386 nucleotides
(c)	<i>Escherichia coli</i>	(iii)	3.3×10^9 Base pairs
(d)	Haploid content Of human DNA	(iv)	4.6×10^6 base pairs

Choose the correct answer from the options give below

- 1) (a) – (i), (b) – (ii), (c) – (iv), (d) – (iii)
2) (a) – (i), (b) – (ii), (c) – (iii), (d) – (iv)
3) (a) – (ii), (b) – (iv), (c) – (i), (d) – (iii)
4) **(a) – (ii), (b) – (i), (c) – (iv), (d) – (iii)**

138. Which type of substance would face difficulty to pass through the cell membrane?

- 1) Substance soluble in lipids
2) Substance with hydrophobic moiety
3) **Substance with hydrophilic moiety**
4) All substance irrespective of hydrophobic and hydrophilic moiety

139. What is the expected percentage of F₂ progeny with yellow and inflated pod in dihybrid cross experiment involving pea plants with green coloured, inflated pod and yellow coloured constricted pod?

- 1) 9% 2) 100% 3) 56.25% 4) **18.75%**

140. Match List I with List II

	List I		List II
(a)	Carbon dissolved	(i)	55 billion tons
(b)	Annual fixation of Carbon through Photosynthesis	(ii)	71%
(c)	PAR captured by Plants	(iii)	4 x 10 ³ kg
(d)	Productivity of oceans	(iv)	2 to 10%

Choose the correct answer from the options give below

- 1) (a) – (iii), (b) – (ii), (c) – (i), (d) – (iv)
 2) (a) – (ii), (b) – (iv), (c) – (iii), (d) – (i)
 3) (a) – (iii), (b) – (iv), (c) – (ii), (d) – (i)
 4) **(a) – (ii), (b) – (iii), (c) – (iv), (d) – (i)**

141. If a female individual is with small round head, furrowed tongue, partially open mouth and broad palm with characteristic palm crease. Also the physical psychomotor and mental development is retarded. The karyotype analysis of such an individual will show.

- 1) **Trisomy of chromosome 21**
 2) 47 chromosomes with XXY sex chromosomes
 3) 45 chromosomes with XO sex chromosomes
 4) 47 chromosomes with XYY sex chromosomes

142. Read the following statements and identify the characters related to the alga shown in the diagram.

- (a) It is a member of Chlorophyceae
 (b) Food is stored in the from of starch
 (c) It is a monoecious plant showing oogonium and antheridium
 (d) Food is stored in the form of laminarin or mannitol
 (e) It shows dominance of pigments Chlorophyll a, c and Fucoxanthin

Choose the correct answer from the options given below:

- 1) (c), (d) and (e) only
 2) (a) and (b) only
 3) **(a), (b) and (c) only**
 4) (a), (c) and (d) only



143. Match List I with List II

	List I		List II
(a)	Sacred groves	(i)	Alien species
(b)	Zoological park	(ii)	Release of large quantity of oxygen
(c)	Nile perch	(iii)	<i>Ex-situ</i> conservation
(d)	Amazon forest	(iv)	Khasi Hills in Meghalaya

Choose the correct answer from the options give below

- 1) (a) – (iv), (b) – (iii), (c) – (ii), (d) – (i)
- 2) **(a) – (iv), (b) – (iii), (c) – (i), (d) – (ii)**
- 3) (a) – (ii), (b) – (iv), (c) – (i), (d) – (iii)
- 4) (a) – (iv), (b) – (i), (c) – (ii), (d) – (iii)

144. The enzyme (a) is needed for isolating genetic material from plant cells and enzyme (b) for isolating genetic material from fungus. Choose the correct pair of options from the following.

- 1) (a) Cellulase (b) Lipase
- 2) (a) Cellulase (b) Protease
- 3) **(a) Cellulase (b) Chitinase**
- 4) (a) Chitinase (b) Lipase

145. Identify the correct sequence of events during Prophase I of meiosis:

- (a) Synapsis of homologous chromosomes
- (b) Chromosomes become gradually visible under microscope
- (c) Crossing over between non-sister chromatids of homologous chromosomes
- (d) Terminalisation of chiasmata
- (e) Dissolution of synaptonemal complex

Choose the correct answer from the options given below:

- 1) (a), (c), (d), (e), (b)
- 2) (a), (b), (c), (d), (e)
- 3) (b), (c), (d), (e), (a)
- 4) **(b), (a), (c), (e), (d)**

146. Which of the following pair represents free living nitrogen fixing aerobic bacteria?

- 1) *Pseudomonas* and *Thiobacillus*
- 2) *Rhizobium* and *Beijerinckia*
- 3) ***Azotobacter* and *Beijerinckia***
- 4) *Anabaena* and *Rhodospirillum*

147. Frugivorous birds are found in large numbers in tropical forests mainly because of:

- 1) temperature conducive for their breeding
- 2) lack of niche specialisation
- 3) higher annual rainfall
- 4) **availability of fruits throughout the year**

148. Identify the correct statements regarding chemiosmotic hypothesis.

- (a) Splitting of the water molecule takes place on the inner side of the membrane.
- (b) Protons accumulate within the lumen of the thylakoids.
- (c) Primary acceptor of electron transfers the electrons to an electron carrier.
- (d) NADP reductase enzyme is located on the stroma side of the membrane.
- (e) Protons increase in number in stroma.

Choose the correct answer from the options given below:

- 1) (b), (c) and (e)
- 2) (a), (b) and (e)
- 3) **(a), (b) and (d)**
- 4) (b), (c) and (d)

149. Match List I with List II

	List I		List II
(a)	Gene gun	(i)	Replacement of a faulty gene by a normal healthy gene
(b)	Gene therapy	(ii)	Used for transfer of Gene
(c)	Gene cloning	(iii)	Total DNA in the cells of an organisms
(d)	Genome	(iv)	To obtain identical copies of a particular DNA molecule

Choose the correct answer from the options give below

- 1) (a) – (ii), (b) – (iii), (c) – (iv), (d) – (i)
- 2) **(a) – (ii), (b) – (i), (c) – (iv), (d) – (iii)**
- 3) (a) – (i), (b) – (iii), (c) – (ii), (d) – (iv)
- 4) (a) – (iv), (b) – (i), (c) – (iii), (d) – (ii)

150. Which of the following can be expected if scientists succeed in introducing apomictic gene varieties of crops.

- 1) There will be segregation of the desired characters only in the progeny
- 2) Polyembryony will be seen and each seed will produce many plantlets
- 3) Seeds of hybrid plants will show longer dormancy
- 4) **Farmers can keep on using the seeds produced by the hybrids to raise new crop year after year.**

ZOOLGY

151. Which of the following animals has three chambered heart?

- 1) *Pteropus* 2) *Scolikodon* 3) *Hippocampus* 4) *Chelone*

152. Which of the following types of epithelium is present in the bronchioles and Fallopian tubes?

- 1) Stratified squamous epithelium 2) Simple squamous epithelium
3) Simple columnar epithelium 4) Ciliated epithelium

153. Which of the following is **not** an Intra Uterine Device?

- 1) Progestasert 2) **Progestogens** 3) Multiload 3754) Lippes loop

154. Match List I with List II

	List I		List II
(a)	<i>Chlamydomonas</i>	(i)	Conidia
(b)	<i>Penicillium</i>	(ii)	Zoospores
(c)	<i>Hydra</i>	(iii)	Gemmules
(d)	Sponge	(iv)	Buds

Choose the correct answer from the options give below

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

155. Which of the following reasons is mainly responsible for graft rejection in transplantation of organs?

- 1) Cell-mediated response
2) Inability of recipient to differentiate between ‘self’ and ‘non-self’ tissues/cells
3) Humoral immune response only
4) Auto-immune response

156. Bivalent or Tetrad formation is a characteristic feature observed during:

- 1) Chiasmata in zygotene stage
2) Synaptonemal complex in zygotene stage
3) Chiasmata in Diplotene stage
4) Synaptonemal complex in Pachytene stage

157. Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): FSH which interacts with membrane bound receptors does not enter the target cell.

Reason (R): Binding of FSH to its receptors generates second messenger (cyclic AMP) for its biochemical and physiological responses.

In the light of the above statements, choose the most appropriate answer from the options given below.

- 1) (A) is not correct but (R) is correct
- 2) **Both (A) and (R) are correct and (R) is the correct explanation of (A)**
- 3) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
- 4) (A) is correct but (R) is not correct

158. Choose the correct statement about a muscular tissue:

- 1) Smooth muscles are multinucleated and involuntary.
- 2) Skeletal muscle fibres are uninucleated and found in parallel bundles.
- 3) **Intercalated discs allow the cardiac muscle cells to contract as a unit.**
- 4) The walls of blood vessels are made up of columnar epithelium.

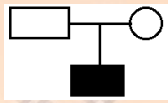



159. Identify the region of human brain which has pneumotaxic centre that alters respiratory rate by reducing the duration of inspiration.

- 1) Cerebrum
- 2) Medulla
- 3) **Pons**
- 4) Thalamus

160. The amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis is called:

- 1) Net primary production
- 2) Secondary production
- 3) Primary production
- 4) **Gross primary production**

161. Select the incorrect match regarding the symbols used in Pedigree analysis.

1)		Parent with male child affected with disease
2)		Sex unspecified
3)		Affected individual
4)		Consanguineous mating

162. If the pH in lysosomes is increased to alkaline, what will be the outcome?
- 1) Lysosomal enzymes will be more active
 - 2) Hydrolytic enzymes will function more efficiently
 - 3) **Hydrolytic enzymes will become inactive**
 - 4) Lysosomal enzymes will be released into the cytoplasm.
163. According to the sliding filament theory.
- 1) The actin filaments slide away from A-band resulting in shortening of sarcomere.
 - 2) Actin and myosin filaments slide over each other to increase the length of the sarcomere.
 - 3) **Length of A-band does not change.**
 - 4) I-band increases in length.
164. Pathogenic bacteria gain resistance to antibiotics due to changes in their:
- 1) Nucleoid
 - 2) Cosmids
 - 3) Plasmids
 - 4) Nucleus
165. Panspermia, an idea that is still a favourite for some astronomers, means.
- 1) **Transfer of spores as unit of life from other planets to Earth.**
 - 2) Creation of life from dead and decaying matter
 - 3) Creation of life from chemicals
 - 4) Origin of sperm in human testes
166. Why CNG is considered better fuel than diesel?
- (a) It can not be adulterated.
 - (b) It takes less time to fill the fuel tank.
 - (c) It burns more efficiently.
 - (d) It is cheaper.
 - (e) It is less inflammable.
- Choose the most appropriate answer from the options given below:
- 1) (c), (d) (e) only
 - 2) (a), (b), (c), (e) only
 - 3) **(a), (c), (d) only**
 - 4) (a), (b), (d), (e) only
167. Which of the following statements are correct with respect to vital capacity?
- (a) It includes ERV, TV and IRV.
 - (b) Total volume of air a person can inspire after a normal expiration.
 - (c) The maximum volume of air a person can breathe in after forced expiration.
 - (d) It includes ERV, RV and IRV.
 - (e) The maximum volume of air a person can breathe out after a forced inspiration.
- Choose the most appropriate answer from the options given below.
- 1) (a) and (e)
 - 2) (b), (d) and (e)
 - 3) (a), (c) and (d)
 - 4) **(a), (c) and (e)**

168. How many secondary spermatocytes are required to form 400 million spermatozoa?

- 1) 400 million 2) 50 million 3) 100 million 4) **200 million**

169. Mad cow disease in cattle and Cr Jacob disease in humans are due to infection by ____.

- 1) **Prion** 2) Bacterium 3) Virus 4) Viroid

170. Arrange the components of mammary gland. (from proximal to distal).

- (a) Mammary duct (b) Lactiferous duct
(c) Alveoli (d) Mammary ampulla
(e) Mammary tubules

Choose the most appropriate answer from the options given below.

- 1) (e) → (c) → (d) → (b) → (a)
2) (c) → (a) → (d) → (e) → (b)
3) (b) → (c) → (e) → (d) → (a)
4) **(c) → (e) → (a) → (d) → (b)**

171. Western Ghats have a large number of plants and animal species that are not found anywhere else. Which of the following term is used to notify such species?

- 1) Vulnerable species 2) Threatened species
3) Keystone species 4) **Endemic species**

172. Match List I with List II regarding the organs of Cockroach:

	List I		List II
(a)	Crop	(i)	Grinding the food particles
(b)	Proventriculus	(ii)	Secretion of digestive juice
(c)	Hepatic caecae	(iii)	Removal of nitrogenous waste
(d)	Malpighian tubules	(iv)	Storage of food

Choose the correct answer from the options give below

- 1) (a) – (i), (b) – (iv), (c) – (iii), (d) – (ii)
2) **(a) – (iv), (b) – (i), (c) – (ii), (d) – (iii)**
3) (a) – (iii), (b) – (ii), (c) – (i), (d) – (iv)
4) (a) – (ii), (b) – (iv), (c) – (i), (d) – (iii)

173. Two butterfly species are competing for the same nectar of a flower in a garden. To survive and coexist together, they may avoid competition in the same garden by:

- 1) predating on each other
2) feeding at the same time
3) **choosing different foraging patterns**
4) increasing time spent on attacking each other

174. Role of enamel is to:

- 1) Give basic shape to the teeth
- 2) Connect crown of tooth with its root
- 3) **Masticate the food**
- 4) Form bolus

175. Choose the incorrect enzymatic reaction.

- 1) Dipeptides $\xrightarrow{\text{Dipeptidases}}$ Amino acids.
- 2) **Maltose $\xrightarrow{\text{Maltase}}$ Glucose + Galactose**
- 3) Sucrose $\xrightarrow{\text{Sucrase}}$ Glucose + Fructose
- 4) Lactase $\xrightarrow{\text{Lactase}}$ Glucose + Galactose

176. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A): During pregnancy the level of thyroxine is increased in the maternal blood.

Reason (R): Pregnancy is characterized by metabolic changes in the mother.

In the light of the above statements, choose the most appropriate answer from the options given below:

- 1) (A) is not correct but (R) is correct
- 2) **Both (A) and (R) are correct and (R) is the correct explanation of (A)**
- 3) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
- 4) (A) is correct but (R) is not correct

177. Choose the correct statements:

- (a) Bones support and protect softer tissues and organs
- (b) Weight bearing function is served by limb bones
- (c) Ligament is the site of production of blood
- (d) Adipose tissue is specialized to store fats.
- (e) Tendons attach one bone to another.

Choose the most appropriate answer from the options given below.

- 1) (a), (b) and (e) only
- 2) **(a), (b) and (d) only**
- 3) (b), (c) and (e) only
- 4) (a), (c) and (d) only

178. If DNA contained sulfur instead of phosphorus and proteins contained phosphorus instead of sulfur, what would have been the outcome of Hershey and Chase experiment?

- 1) Radioactive phosphorus in bacterial cells
- 2) No radioactive sulfur in bacterial cells
- 3) Both radioactive sulfur and phosphorus in bacterial cells
- 4) **Radioactive sulfur in bacterial cells**

179. Select the incorrect statements with respect to Cyclostomes.

- (a) They lack scales and paired fins.
- (b) They have circular mouth with jaws.
- (c) They bear 6-15 pairs of gills.
- (d) They migrate to deep sea for spawning.

Choose the most appropriate answer from the options given below:

- 1) (a) and (d) only
- 2) (a) and (b) only
- 3) (b) and (c) only
- 4) **(b) and (d) only**

180. A unique vascular connection between the digestive tract and liver is called.

- 1) Hepato-cystic system
- 2) Hepato-pancreatic system
- 3) **Hepatic portal system**
- 4) Renal portal system

181. Milk of transgenic 'Cow Rosie' was nutritionally more balanced product for human babies than natural cow milk because it contained:

- 1) Human enzyme Adenosine Deaminase (ADA)
- 2) Human protein α - 1 antitrypsin
- 3) **Human alpha - lactalbumin**
- 4) Human insulin-like growth factor

182. Gout is a type of disorder which leads to:

- 1) Weakening of bones due to low calcium level
- 2) **Inflammation of joints due to accumulation of uric acid crystals.**
- 3) Weakening of bones due to decreased bone mass
- 4) Inflammation of joints due to cartilage degeneration.

183. Which of the following methods is not commonly used for introducing foreign DNA into the plant cell?

- 1) **Bacteriophages**
- 2) Agrobacterium mediated transformation
- 3) Gene gun
- 4) 'Disarmed pathogen' vectors

184. Given below are two statements:

Statement I: Amino acids have a property of ionizable nature of $-NH_2$ and $-COOH$ groups, hence have different structures at different pH.

Statement II: Amino acids can exist as Zwitterionic form at acidic and basic pH.

In the Light of the above statements, choose the most appropriate answer from the options given below:

- 1) Statement I is incorrect but Statement II is correct
- 2) **Both Statement I and Statement II are correct**
- 3) Both Statement I and Statement II are incorrect
- 4) Statement I is correct but Statement II is incorrect

185. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R)

Assertion (A): *Spirulina* is a microbe that can be used for reducing environmental pollution.

Reason (R): *Spirulina* is a rich source of protein, carbohydrates, fats, minerals and vitamins.

In the light of the above statements, choose the most appropriate answer from the options given below:

- 1) (A) is not correct but (R) is correct
- 2) Both (A) and (R) are correct and (R) is the correct explanation of (A)
- 3) **Both (A) and (R) are correct but (R) is not the correct explanation of (A)**
- 4) (A) is correct but (R) is not correct

186. With respect to metaphase, which of the following statements is incorrect?

- 1) Chromosomes lie at the equator of the cell
- 2) Complete disintegration of nuclear envelope takes place
- 3) Chromosomes are highly condensed
- 4) **Metaphase chromosomes are made up of four sister chromatids held together by centromere.**

187. Against the codon 5' UAC 3', what would be the sequence of anticodon on tRNA?

- 1) **5' GUA 3'**
- 2) 5' AUG 3'
- 3) 5' ATG 3'
- 4) 5' GTA 3'

188. Arrange the following formed elements in the decreasing order of their abundance in blood in humans:

- (a) Platelets (b) Neutrophils (c) Erythrocytes. (d) Eosinophils
(e) Monocytes

Choose the most appropriate answer from the options given below.

- 1) (a), (c) (b), (d), (e)
- 2) **(c), (a), (b), (e), (d)**
- 3) (c), (b), (a), (e), (d)
- 4) (d), (e), (b), (a), (c)

189. Which of the following are true about the taxonomical aid 'key'?

- (a) Keys are based on the similarities and dissimilarities.
- (b) Key is analytical in nature.
- (c) Keys are based on the contrasting characters in pair called Couplet.
- (d) Same key can be used for all taxonomic categories.
- (e) Each statement in the key is called Lead.

Choose the most appropriate answer from the options given below.

- 1) (a), (c), (d) and (e) only
- 2) (a), (b) and (c) only
- 3) (b), (c) and (d) only
- 4) **(a), (b), (c) and (e) only**

190. A normal girl, whose mother is haemophilic marries a male with no ancestral history of haemophilia. What will be the possible phenotypes of the offsprings?
- Haemophilic son and haemophilic daughter.
 - Haemophilic son and carrier daughter.
 - Normal daughter and normal son.
 - Normal son and haemophilic daughter.
- Choose the most appropriate answer form the options given below.
- (b) and (d) only
 - (a) and (b) only
 - (b) and (c) only**
 - (a) and (d) only
191. In the enzyme which catalyses the breakdown of:
- $$\text{H}_2\text{O}_2 \rightarrow \text{H}_2\text{O} + \text{O}_2$$
- The prosthetic group is:
- Niacin
 - Nicotinamide adenine dinucleotide
 - Haem**
 - Zinc
192. Select the incorrect statement with respect to inbreeding of animals.
- It exposes harmful recessive genes that are eliminated by selection.
 - It is used for evolving pure lines in cattle.
 - It helps in accumulation of superior genes and elimination of less desirable genes.
 - It decreases homozygosity.**
193. IUDs are small objects made up of plastic or copper that are inserted in the uterine cavity. Which of the following statements are correct about IUDs?
- IUDs decrease phagocytosis of sperm within the uterus.
 - The released copper ions suppress the sperm motility.
 - IUDs do not make the cervix hostile to the sperm.
 - IUDs suppress the fertilization capacity of sperm.
 - The IUDs require surgical intervention for their insertion in the uterine cavity.
- Choose the most appropriate answer from the options given below.
- (d) only
 - (a), (d) and (e) only
 - (b) and (c) only
 - (b) and (d) only**
194. Select the correct statement regarding mutation theory of evolution.
- Large differences due to mutations arise gradually in a population.
 - This theory was proposed by Alfred Wallace
 - Variations are small directional changes
 - Single step large mutation is a cause of speciation.**
195. Excretion in cockroach is performed by all, EXCEPT:
- Hepatic caeca**
 - Ureose glands
 - Malpighian tubules
 - Fat body

196. Select the **correct** statements.

- (a) Angiotensin II activates the cortex of adrenal gland to release aldosterone.
- (b) Aldosterone leads to increase in blood pressure.
- (c) ANF acts as a check on renin-angiotensin mechanism.
- (d) ADH causes vasodilation.
- (e) Vasopressin is released from adenohipophysis.

Choose the **mot appropriate** answer from the options given below.

- 1) **(a), (b) and (c) only**
- 2) (a), (b) and (e) only
- 3) (c) (d) and (e) only
- 4) (b), (c) and (d) only

197. If A and C make 30% and 20% of DNA, respectively, what will be the percentage composition of T. and G?

- 1) T : 20%, G : 20%
- 2) T : 20%, G : 30%
- 3) **T : 30%, G : 20%**
- 4) T : 30%, G : 30%

198. Refer to the following statements for agarosegel electrophoresis:

- (a) Agarose is a natural polymer obtained from sea-weed.
- (b) The separation of DNA molecules in agarose-gel electrophoresis depends on the size of DNA.
- (c) The DNA migrates from negatively-charged electrode to the positively-charged electrode
- (d) The DNA migrates from positively-charged electrode to the negatively-charged electrode.

Choose the **most appropriate** answer from the options given below.

- 1) (b), (c) and (d) only
- 2) (a) and (b) only
- 3) **(a), (b) and (c) only**
- 4) (a), (b) and (d) only

199. Match List – I with List – II.

	List I		List II
(a)	Multipolar neuron	(i)	Somatic neural system
(b)	Bipolar neuron	(ii)	Cerebral cortex
(c)	Myelinated nerve fibre	(iii)	Retina of Eye
(d)	Unmyelinated nerve fibre	(iv)	Spinal nerves

Choose the **correct answer** from the options give below

- 1) **(a) – (ii), (b) – (iii), (c) – (iv), (d) – (i)**
- 2) (a) – (iii), (b) – (i), (c) – (iv), (d) – (ii)
- 3) (a) – (ii), (b) – (iv), (c) – (iii), (d) – (i)
- 4) (a) – (ii), (b) – (iii), (c) – (i), (d) – (iv)

200. Match List – I with List – II

	List I		List II
(a)	Cellular barrier	(i)	Interferons
(b)	Cytokine barrier	(ii)	Mucus
(c)	Physical barrier	(iii)	Neutrophils
(d)	Physiological barrier	(iv)	HCl in gastric juice

Choose the correct answer from the options give below

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