

BOTANY**SECTION-A**

101. What is the role of RNA polymerase III in the process of transcription in Eukaryotes?

- (1) Transcription of only snRNAs
- (2) Transcription of rRNAs (28S, 18S and 5.8S)
- (3) Transcription of tRNA, 5S rRNA and snRNA
- (4) Transcription of precursor of mRNA

Answer (3)

102. Movement and accumulation of ions across a membrane against their concentration gradient can be explained by

- (1) Active Transport
- (2) Osmosis
- (3) Facilitated Diffusion
- (4) Passive Transport

Answer (1)

103. Upon exposure to UV radiation, DNA stained with ethidium bromide will show

- (1) Bright orange colour
- (2) Bright red colour
- (3) Bright blue colour
- (4) Bright yellow colour

Answer (1)

104. The thickness of ozone in a column of air in the atmosphere is measured in terms of :

- (1) Kilobase
- (2) Dobson units
- (3) Decibels
- (4) Decameter

Answer (2)

105. Among eukaryotes, replication of DNA takes place in :

- (1) G₂ phase
- (2) M phase
- (3) S phase
- (4) G₁ phase

Answer (3)

106. Spraying of which of the following phytohormone on juvenile conifers helps hastening the maturity period, that leads early seed production?
- (1) Abscisic Acid
 - (2) Indole-3-butyric Acid
 - (3) Gibberellic Acid
 - (4) Zeatin

Answer (3)

107. Given below are two statements :

Statement I : The forces generated transpiration can lift a xylem-sized column of water over 130 meters height.

Statement II : Transpiration cools leaf surfaces sometimes 10 to 15 degrees evaporative cooling.

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

Answer (2)

108. The historic Convention on Biological Diversity, 'The Earth Summit' was held in Rio de Janeiro in the year

- (1) 2002
- (2) 1985
- (3) 1992
- (4) 1986

Answer (3)

109. Which micronutrient is required for splitting of water molecule during photosynthesis?

- (1) Copper
- (2) Manganese
- (3) Molybdenum
- (4) Magnesium

Answer (2)

110. Given below are two statements : One is labelled as **Assertion A** and the other is labelled as **Reason R** :

Assertion A : ATP is used at two steps in glycolysis.

Reason R : First ATP is used in converting glucose into glucose-6-phosphate and second ATP is used in conversion of fructose-6-phosphate into fructose-1,6-diphosphate.

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

- (1) **A** is false but **R** is true.
- (2) Both **A** and **R** are true and **R** is the correct explanation of **A**.
- (3) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**.
- (4) **A** is true but **R** is false.

Answer (2)

111. Large, colourful, fragrant flowers with nectar are seen in

- (1) Wind pollinated plants
- (2) Insect pollinated plants
- (3) Bird pollinated plants
- (4) Bat pollinated plants

Answer (2)

112. Given below are two statements : One labelled as **Assertion A** and the other labelled as **Reason R**:

Assertion A : The first stage of gametophyte in the life cycle of moss is protonema stage.

Reason R : Protonema develops directly from spores produced in capsule.

In the light of the above statements, choose the **most appropriate** answer from 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

Answer (2)

113. Which of the following stages of meiosis involves division of centromere?

- (1) Telophase
- (2) Metaphase I
- (3) Metaphase II
- (4) Anaphase II

Answer (4)

114. In angiosperm, the haploid, diploid and triploid structures of a fertilized embryo sac sequentially are :

- (1) Synergids, antipodals and Polar nuclei
- (2) Synergids, Primary endosperm nucleus and zygote
- (3) Antipodals, synergids, and primary endosperm nucleus
- (4) Synergids, Zygote and Primary endosperm nucleus

Answer (4)

115. Expressed Sequence Tags (ESTs) refers to

- (1) Certain important expressed genes.
- (2) All genes that are expressed as RNA.
- (3) All genes that are expressed as proteins.
- (4) All genes whether expressed or unexpressed.

Answer (2)

116. Given below are two statements :

Statement I : Endarch and exarch are the terms often used for describing the position of secondary xylem in the plant body.

Statement II : Exarch condition is the most common feature of the root system.

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 true
- (2) Both **Statement I** and **Statement II** are true
- (3) Both **Statement I** and **Statement II** are false
- (4) **Statement I** is correct but **Statement II** is false

Answer (1)

117. What is the function of tassels in the corn cob?

- (1) To protect seeds
- (2) To attract insects
- (3) To trap pollen grains
- (4) To disperse pollen grains

Answer (3)

118. The process of appearance of recombination nodules occurs at which sub stage of prophase I in meiosis?

- (1) Diakinesis
- (2) Zygotene
- (3) Pachytene
- (4) Diplotene

Answer (3)

119. The phenomenon of pleiotropism refers to

- (1) More than two genes affecting a single character
- (2) Presence of several alleles of a single gene controlling a single crossover
- (3) Presence of two alleles, each of the two genes controlling a single trait
- (4) A single gene affecting multiple phenotypic expression

Answer (4)

120. Identify the **correct** statements:

- A. Detrivores perform fragmentation.
- B. The humus is further degraded by some microbes during mineralization.
- C. Water soluble inorganic nutrients go down into the soil and get precipitated by a process called leaching.
- D. The detritus food chain begins with living organisms.
- E. Earthworms break down detritus into smaller particles by a process called catabolism.

Choose the **correct** answer from the options given below:

- (1) D, E, A only
- (2) A, B, C only
- (3) B, C, D only
- (4) C, D, E only

Answer (2)

121. Cellulose does not form blue colour with Iodine because

- (1) It breaks down when iodine reacts with it
- (2) It is a disaccharide
- (3) It is a helical molecule
- (4) It does not contain complex helices and hence cannot hold iodine molecules

Answer (4)

122. In the equation $GPP - R = NPP$

GPP is Gross Primary Productivity

NPP is Net Primary Productivity

R here is _____.

- (1) Reproductive allocation
- (2) Photosynthetically active radiation
- (3) Respiratory quotient
- (4) Respiratory loss

Answer (4)

123. How many ATP and $NADPH_2$ are required for the synthesis of one molecule of Glucose during Calvin cycle?

- (1) 18 ATP and 16 $NADPH_2$
- (2) 12 ATP and 12 $NADPH_2$
- (3) 18 ATP and 12 $NADPH_2$
- (4) 12 ATP and 16 $NADPH_2$

Answer (3)

124. In gene gun method used to introduce alien DNA into host cells, microparticles of _____ metal are used.

- (1) Silver
- (2) Copper
- (3) Zinc
- (4) Tungsten or gold

Answer (4)

125. Among 'The Evil Quartet', which one is considered the most important cause driving extinction of species?

- (1) Co-extinctions
- (2) Habitat loss and fragmentation
- (3) Over exploitation for economic gain
- (4) Alien species invasions

Answer (2)

126. Given below are two statements : One is labelled as **Assertion A** and the other is labelled as **Reason R** :

Assertion A : Late wood has fewer xylary elements with narrow vessels.

Reason R : Cambium is less active in winters.

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

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

Answer (2)

127. Unequivocal proof that DNA is the genetic material was first proposed by

- (1) Wilkins and Franklin
- (2) Frederick Griffith
- (3) Alfred Hershey and Martha Chase
- (4) Avery, Macleoid and McCarthy

Answer (3)

128. Frequency of recombination between gene pairs on same chromosome as a measure of the distance between genes to map their position on chromosome, was used for the first time by

- (1) Henking
- (2) Thomas Hunt Morgan
- (3) Sutton and Boveri
- (4) Alfred Sturtevant

Answer (4)

129. The reaction centre in PS II has an absorption maxima at

- (1) 780 nm
- (2) 680 nm
- (3) 700 nm
- (4) 660 nm

Answer (2)

130. Family Fabaceae differs from Solanaceae and Liliaceae. With respect to the stamens, pick out the characteristics specific to family Fabaceae but not found in Solanaceae or Liliaceae.

- (1) Epiphyllous and Ditheous anthers
- (2) Diadelphous and Ditheous anthers
- (3) Polyadelphous and epipetalous stamens
- (4) Monoadelphous and Monotheous anthers

Answer (2)

131. In tissue culture experiments, leaf mesophyll cells are put in a culture medium to form callus. This phenomenon may be called as

- (1) Senescence
- (2) Differentiation
- (3) Dedifferentiation
- (4) Development

Answer (3)

132. Which hormone promotes internode/petiole elongation in deep water rice?

- (1) 2, 4-D
- (2) GA₃
- (3) Kinetin
- (4) Ethylene

Answer (4)

133. During the purification process for recombinant DNA technology, addition of chilled ethanol precipitates out
- (1) Polysaccharides
 - (2) RNA
 - (3) DNA
 - (4) Histones

Answer (3)

134. Identify the pair of heterosporous pteridophytes among the following :
- (1) *Equisetum* and *Salvinia*
 - (2) *Lycopodium* and *Selaginella*
 - (3) *Selaginella* and *Salvinia*
 - (4) *Psilotum* and *Salvinia*

Answer (3)

135. Axile placentation is observed in
- (1) China rose, Petunia and Lemon
 - (2) Mustard, Cucumber and Primrose
 - (3) China rose, Beans and Lupin
 - (4) Tomato, Dianthus and Pea

Answer (1)

SECTION-B

136. Given below are two statements : One is labelled as **Assertion A** and the other is labelled as **Reason R** :
- Assertion A** : A flower is defined as modified shoot wherein the shoot apical meristem changes to floral meristem.
- Reason R** : Internode of the shoot gets condensed to produce different floral appendages laterally at successive node instead of leaves.
- In the light of the above statements, choose the **correct** answer from the options given below :
- (1) **A** is false but **R** is true
 - (2) Both **A** and **R** are true and **R** is the correct explanation of **A**
 - (3) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**
 - (4) **A** is true but **R** is false

Answer (2)

137. How many different proteins does the ribosome consist of?
- (1) 20
 - (2) 80
 - (3) 60
 - (4) 40

Answer (2)

138. Melonate inhibits the growth of pathogenic bacteria by inhibiting the activity of

- (1) Dinitrogenase
- (2) Succinic dehydrogenase
- (3) Amylase
- (4) Lipase

Answer (2)

139. Match **List I** with **List II** :

List I

- A. Oxidative decarboxylation
- B. Glycolysis
- C. Oxidative phosphorylation
- D. Tricarboxylic acid cycle

List II

- I. Citrate synthase
- II. Pyruvate dehydrogenase
- III. Electron transport system
- IV. EMP pathway

Choose the correct answer from the options given below :

- (1) A – II, B – IV, C – III, D – I
- (2) A – III, B – IV, C – II, D – I
- (3) A – II, B – IV, C – I, D – III
- (4) A – III, B – I, C – II, D – IV

Answer (1)

140. Given below are two statements:

Statement I : Gause's 'Competitive Exclusion Principle' states that two closely related species competing for the same resources cannot co-exist indefinitely and competitively inferior one will be eliminated eventually.

Statement II : In general, carnivores are more adversely affected by competition than herbivores.

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 true.
- (2) Both **Statement I** and **Statement II** are true.
- (3) Both **Statement I** and **Statement II** are false.
- (4) **Statement I** is correct **Statement II** is false.

Answer (4)

141. Which of the following combinations is required for chemiosmosis?

- (1) Proton pump, electron gradient, NADP synthase
- (2) Membrane, proton pump, proton gradient, ATP synthase
- (3) Membrane, proton pump, proton gradient, NADP synthase
- (4) Proton pump, electron gradient, ATP synthase

Answer (2)

142. Given below are two statements : One labelled as **Assertion A** and the other labelled as **Reason R** :

Assertion A : In gymnosperms the pollen grains are released from the microsporangium and carried by air currents.

Reason R : Air currents carry the pollen grains to the mouth of the archegonia where the male gametes are discharged and pollen tube is not formed.

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

- (1) **A** is false but **R** is true
- (2) Both **A** and **R** are true and **R** is the correct explanation of **A**
- (3) Both **A** and **R** are true but **R** is NOT the current explanation of **A**
- (4) **A** is true but **R** is false

Answer (4)

143. Which one of the following statements is **NOT** correct?

- (1) The amount of some toxic substances of industrial waste water increases in the organisms at successive trophic levels
- (2) The micro-organisms involved in biodegradation of organic matter in a sewage polluted water body consume a lot of oxygen causing the death of aquatic organisms
- (3) Algal blooms caused by excess of organic matter in water improve water quality and promote fisheries
- (4) Water hyacinth grows abundantly in eutrophic water bodies and leads to an imbalance in the ecosystem dynamics of the water body

Answer (3)

144. Which of the following statements are correct about Klinefelter's Syndrome?

- A. This disorder was first described by Langdon Down (1866).
- B. Such an individual has overall masculine development. However, the feminine development is also expressed.
- C. The affected individual is short statured.
- D. Physical, psychomotor and mental development is retarded.
- E. Such individuals are sterile.

Choose the **correct** answer from the options given below:

- (1) A and E only
- (2) A and B only
- (3) C and D only
- (4) B and E only

Answer (4)

145. Identify the **correct** statements:

- A. Lenticels are the lens-shaped openings permitting the exchange of gases.
- B. Bark formed early in the season is called hard bark.
- C. Bark is a technical term that refers to all tissues exterior to vascular cambium.
- D. Bark refers to periderm and secondary phloem.
- E. Phellogen is single-layered in thickness.

Choose the correct answer from the options given below:

- (1) B and C only
- (2) B, C and E only
- (3) A and D only
- (4) A, B and D only

Answer (3)

146. Match **List I** with **List II** :

List I	List II
A. M Phase	I. Proteins are synthesized
B. G ₂ Phase	II. Inactive phase
C. Quiescent stage	III. Interval between mitosis and initiation of DNA replication
D. G ₁ Phase	IV. Equational division

Choose the correct answer from the options given below :

- (1) A-II, B-IV, C-I, D-III
- (2) A-III, B-II, C-IV, D-I
- (3) A-IV, B-II, C-I, D-III
- (4) A-IV, B-I, C-II, D-III

Answer (4)

147. Match **List I** with **List II** :

List I (Interaction)	List II (Species A and B)
A. Mutualism	I. +(A), 0(B)
B. Commensalism	II. -(A), 0(B)
C. Amensalism	III. +(A), -(B)
D. Parasitism	IV. +(A), +(B)

Choose the **correct** answer from the options given below:

- (1) A-III, B-I, C-IV, D-II
- (2) A-IV, B-II, C-I, D-III
- (3) A-IV, B-I, C-II, D-III
- (4) A-IV, B-III, C-I, D-II

Answer (3)

148. Match **List I** with **List II** :

List I	List II
A. Cohesion	I. More attraction in liquid phase
B. Adhesion	II. Mutual attraction among water molecules
C. Surface tension	III. Water loss in liquid phase
D. Guttation	IV. Attraction towards polar surfaces

Choose the **correct** answer from the options given below :

- (1) A – II, B – I, C – IV, D – III
- (2) A – II, B – IV, C – I, D – III
- (3) A – IV, B – III, C – II, D – I
- (4) A – III, B – I, C – IV, D – II

Answer (2)

149. Main steps in the formation of Recombinant DNA are given below. Arrange these steps in a correct sequence.

- A. Insertion of recombinant DNA into the host cell
- B. Cutting of DNA at specific location by restriction enzyme
- C. Isolation of desired DNA fragment
- D. Amplification of gene of interest using PCR

Choose the correct answer from the options given below :

- (1) B, D, A, C
- (2) B, C, D, A
- (3) C, A, B, D
- (4) C, B, D, A

Answer (2)

150. Match **List I** with **List II**:

List I	List II
A. Iron	I. Synthesis of auxin
B. Zinc	II. Component of nitrate reductase
C. Boron	III. Activator of catalase
D. Molybdenum	IV. Cell elongation and differentiation

Choose the correct answer from the options given below:

- (1) A-II, B-IV, C-I, D-III
- (2) A-III, B-II, C-I, D-IV
- (3) A-II, B-III, C-IV, D-I
- (4) A-III, B-I, C-IV, D-II

Answer (4)

ZOOLOGY

SECTION-A

151. Match **List I** with **List II**

List I	List II
(Cells)	(Secretion)
A. Peptic cells	I. Mucus
B. Goblet cells	II. Bile juice
C. Oxyntic cells	III. Proenzyme pepsinogen
D. Hepatic cells	IV. HCl and intrinsic factor for absorption of vitamin B ₁₂

Choose the **correct** answer from the options given below:

- | | |
|----------------------------|----------------------------|
| (1) A-II, B-IV, C-I, D-III | (2) A-IV, B-III, C-II, D-I |
| (3) A-II, B-I, C-III, D-IV | (4) A-III, B-I, C-IV, D-II |

Answer (4)

152. Which one of the following common sexually transmitted diseases is completely curable when detected early and treated properly?

- (1) HIV Infection
- (2) Genital herpes
- (3) Gonorrhoea
- (4) Hepatitis-B

Answer (3)

153. Select the correct group/set of Australian Marsupials exhibiting adaptive radiation.

- (1) Lemur, Anteater, Wolf
- (2) Tasmanian wolf, Bobcat, Marsupial mole
- (3) Numbat, Spotted cuscus, Flying phalanger
- (4) Mole, Flying squirrel, Tasmanian tiger cat

Answer (3)

154. Match **List I** with **List II**.

List I	List II
A. P-wave	I. Beginning of systole
B. Q-wave	II. Repolarisation of ventricles
C. QRS complex	III. Depolarisation of atria
D. T-wave	IV. Depolarisation of ventricles

Choose the **correct** answer from the options given below :

- | | |
|----------------------------|----------------------------|
| (1) A-I, B-II, C-III, D-IV | (2) A-III, B-I, C-IV, D-II |
| (3) A-IV, B-III, C-II, D-I | (4) A-II, B-IV, C-I, D-III |

Answer (2)

155. Match **List I** with **List II**.

List I	List II
A. Ringworm	I. <i>Haemophilus influenzae</i>
B. Filariasis	II. <i>Trichophyton</i>
C. Malaria	III. <i>Wuchereria bancrofti</i>
D. Pneumonia	IV. <i>Plasmodium vivax</i>

Choose the **correct** answer from the options given below:

- (1) A-III, B-II, C-IV, D-I
- (2) A-II, B-III, C-IV, D-I
- (3) A-II, B-III, C-I, D-IV
- (4) A-III, B-II, C-I, D-IV

Answer (2)

156. Given below are two statements:

Statement I: Vas deferens receives a duct from seminal vesicle and opens into urethra as the ejaculatory duct.

Statement II: The cavity of the cervix is called cervical canal which along with vagina forms birth canal.

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 true.
- (2) Both **Statement I** and **Statement II** are true.
- (3) Both **Statement I** and **Statement II** are false.
- (4) **Statement I** is correct but **Statement II** is false.

Answer (2)

157. Given below are two statements:

Statement I: RNA mutates at a faster rate.

Statement II: Viruses having RNA genome and shorter life span mutate and evolve faster.

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

- (1) **Statement I** is false but **Statement II** is true.
- (2) Both **Statement I** and **Statement II** are true.
- (3) Both **Statement I** and **Statement II** are false.
- (4) **Statement I** is true but **Statement II** is false.

Answer (2)

158. Radial symmetry is NOT found in adults of phylum _____.

- (1) Echinodermata
- (2) Ctenophora
- (3) Hemichordata
- (4) Coelenterata

Answer (3)

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

Assertion A: Nephrons are of two types: Cortical & Juxta medullary, based on their relative position in cortex and medulla.

Reason R: Juxta medullary nephrons have short loop of Henle whereas, cortical nephrons have longer loop of Henle.

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

- (1) **A** is false but **R** is true.
- (2) Both **A** and **R** are true and **R** is the correct explanation of **A**.
- (3) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**.
- (4) **A** is true but **R** is false.

Answer (4)

160. Vital capacity of lung is _____.

- (1) IRV + ERV + TV
- (2) IRV + ERV
- (3) IRV + ERV + TV + RV
- (4) IRV + ERV + TV – RV

Answer (1)

161. Which of the following are NOT considered as the part of endomembrane system?

- A. Mitochondria
- B. Endoplasmic reticulum
- C. Chloroplasts
- D. Golgi complex
- E. Peroxisomes

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

- (1) A, D and E only
- (2) B and D only
- (3) A, C and E only
- (4) A and D only

Answer (3)

162. Match **List I** with **List II**.

List I	List II
A. Gene 'a'	I. β -galactosidase
B. Gene 'y'	II. Transacetylase
C. Gene 'i'	III. Permease
D. Gene 'z'	IV. Repressor protein

Choose the **correct** answer from the options given below:

- (1) A-III, B-I, C-IV, D-II
- (2) A-II, B-I, C-IV, D-III
- (3) A-II, B-III, C-IV, D-I
- (4) A-III, B-IV, C-I, D-II

Answer (3)

163. Match **List I** with **List II**.

List I	List II
A. Heroin	I. Effect on cardiovascular system
B. Marijuana	II. Slow down body function
C. Cocaine	III. Painkiller
D. Morphine	IV. Interfere with transport of dopamine

Choose the **correct** answer from the options given below:

- | | |
|----------------------------|----------------------------|
| (1) A-III, B-IV, C-I, D-II | (2) A-II, B-I, C-IV, D-III |
| (3) A-I, B-II, C-III, D-IV | (4) A-IV, B-III, C-II, D-I |

Answer (2)

164. Match **List I** with **List II**.

List I (Type of Joint)	List II (Found between)
A. Cartilaginous Joint	I. Between flat skull bones
B. Ball and Socket Joint	II. Between adjacent vertebrae in vertebral column
C. Fibrous Joint	III. Between carpal and metacarpal of thumb
D. Saddle Joint	IV. Between Humerus and Pectoral girdle

Choose the **correct** answer from the options given below:

- | | |
|----------------------------|----------------------------|
| (1) A-II, B-IV, C-III, D-I | (2) A-III, B-I, C-II, D-IV |
| (3) A-II, B-IV, C-I, D-III | (4) A-I, B-IV, C-III, D-II |

Answer (3)

165. Match **List I** with **List II**.

List I	List II
A. CCK	I. Kidney
B. GIP	II. Heart
C. ANF	III. Gastric gland
D. ADH	IV. Pancreas

Choose the **correct** answer from the options given below :

- (1) A-IV, B-II, C-III, D-I
- (2) A-IV, B-III, C-II, D-I
- (3) A-III, B-II, C-IV, D-I
- (4) A-II, B-IV, C-I, D-III

Answer (2)

166. Which of the following statements is correct?

- (1) Algal Bloom decreases fish mortality
- (2) Eutrophication refers to increase in domestic sewage and waste water in lakes.
- (3) Biomagnification refers to increase in concentration of the toxicant at successive trophic levels.
- (4) Presence of large amount of nutrients in water restricts 'Algal Bloom'

Answer (3)

167. Match **List I** with **List II**.

List I (Interacting species)	List II (Name of interaction)
A. A Leopard and a Lion in a forest/grassland	I. Competition
B. A Cuckoo laying egg in a Crow's nest	II. Brood parasitism
C. Fungi and root of a higher plant in Mycorrhizae	III. Mutualism
D. A cattle egret and a Cattle in a field	IV. Commensalism

Choose the **correct** answer from the options given below.

- | | |
|----------------------------|----------------------------|
| (1) A-II, B-III, C-I, D-IV | (2) A-I, B-II, C-III, D-IV |
| (3) A-I, B-II, C-IV, D-III | (4) A-III, B-IV, C-I, D-II |

Answer (2)

168. In which blood corpuscles, the HIV undergoes replication and produces progeny viruses?

- (1) Eosinophils
- (2) T_H cells
- (3) B-lymphocytes
- (4) Basophils

Answer (2)

169. Match **List I** with **List II** with respect to human eye.

List I	List II
A. Fovea	I. Visible coloured portion of eye that regulates diameter of pupil.
B. Iris	II. External layer of eye formed of dense connective tissue.
C. Blind spot	III. Point of greatest visual acuity or resolution.
D. Sclera	IV. Point where optic nerve leaves the eyeball and photoreceptor cells are absent.

Choose the **correct** answer from the options given below:

- | | |
|----------------------------|----------------------------|
| (1) A-II, B-I, C-III, D-IV | (2) A-III, B-I, C-IV, D-II |
| (3) A-IV, B-III, C-II, D-I | (4) A-I, B-IV, C-III, D-II |

Answer (2)

170. Given below are two statements:

Statement I: In prokaryotes, the positively charged DNA is held with some negatively charged proteins in a region called nucleoid.

Statement II: In eukaryotes, the negatively charged DNA is wrapped around the positively charged histone octamer to form nucleosome.

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 true.
- (2) Both **Statement I** and **Statement II** are true.
- (3) Both **Statement I** and **Statement II** are false.
- (4) **Statement I** is correct but **Statement II** is false.

Answer (1)

171. Given below are two statements:

Statement I: Ligaments are dense irregular tissue.

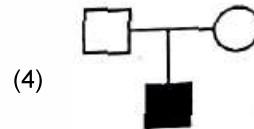
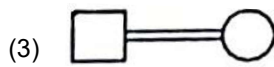
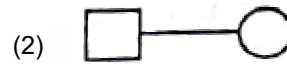
Statement II: Cartilage is dense regular tissue.

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

- (1) **Statement I** is false but **Statement II** is true
- (2) Both **Statement I** and **Statement II** are true
- (3) Both **Statement I** and **Statement II** are false
- (4) **Statement I** is true but **Statement II** is false

Answer (3)

172. Which one of the following symbols represents mating between relatives in human pedigree analysis?



Answer (3)

173. Which one of the following techniques does not serve the purpose of early diagnosis of a disease for its early treatment?

- (1) Enzyme Linked Immuno-Sorbent Assay (ELISA) technique
- (2) Recombinant DNA Technology
- (3) Serum and Urine analysis
- (4) Polymerase Chain Reaction (PCR) technique

Answer (3)

174. Match **List I** with **List II**.

List I

- A. *Taenia*
- B. *Paramoecium*
- C. *Periplaneta*
- D. *Pheretima*

List II

- I. Nephridia
- II. Contractile vacuole
- III. Flame cells
- IV. Urecose gland

Choose the **correct** answer from the options given below:

- (1) A-II, B-I, C-IV, D-III
- (2) A-I, B-II, C-III, D-IV
- (3) A-I, B-II, C-IV, D-III
- (4) A-III, B-II, C-IV, D-I

Answer (4)

175. Given below are two statements: one is labelled as **Assertion A** and other is labelled as **Reason R**.

Assertion A : Amniocentesis for sex determination is one of the strategies of Reproductive and Child Health Care Programme.

Reason R : Ban on amniocentesis checks increasing menace of female foeticide.

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

- (1) **A** is false but **R** is true.
- (2) Both **A** and **R** are true and **R** is the correct explanation of **A**.
- (3) Both **A** and **R** are true and **R** is NOT the correct explanation of **A**.
- (4) **A** is true but **R** is false.

Answer (1)

176. Given below are two statements:

Statement I : Electrostatic precipitator is most widely used in thermal power plant

Statement II : Electrostatic precipitator in thermal power plant removes ionising radiations

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.

Answer (4)

177. Once the undigested and unabsorbed substances enter the caecum, their backflow is prevented by

- (1) Pyloric sphincter
- (2) Sphincter of Oddi
- (3) Ileo-caecal valve
- (4) Gastro-oesophageal sphincter

Answer (3)

178. Match **List I** with **List II**.

List I	List II
A. Vasectomy	I. Oral method
B. Coitus interruptus	II. Barrier method
C. Cervical caps	III. Surgical method
D. Saheli	IV. Natural method

Choose the **correct** answer from the options given below:

- (1) A-IV, B-II, C-I, D-III
- (2) A-III, B-I, C-IV, D-II
- (3) A-III, B-IV, C-II, D-I
- (4) A-II, B-III, C-I, D-IV

Answer (3)

179. Given below are two statements :

Statement I : Low temperature preserves the enzyme in a temporarily inactive state whereas high temperature destroys enzymatic activity because proteins are denatured by heat.

Statement II : When the inhibitor closely resembles the substrate in its molecular structure and inhibits the activity of the enzyme, it is known as competitive inhibitor.

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

- (1) **Statement I** is false but **Statement II** is true.
- (2) Both **Statement I** and **Statement II** are true.
- (3) Both **Statement I** and **Statement II** are false.
- (4) **Statement I** is true but **Statement II** is false.

Answer (2)

180. Which of the following is not a cloning vector?

- | | |
|-----------|------------|
| (1) Probe | (2) BAC |
| (3) YAC | (4) pBR322 |

Answer (1)

181. Which of the following functions is carried out by cytoskeleton in a cell?

- | | |
|-----------------------|----------------------|
| (1) Transportation | (2) Nuclear division |
| (3) Protein synthesis | (4) Motility |

Answer (4)

182. Given below are two statements:

Statement I: A protein is imagined as a line, the left end represented by first amino acid (C-terminal) and the right end represented by last amino acid (N-terminal).

Statement II: Adult human haemoglobin, consists of 4 subunits (two subunits of α type and two subunits of β type.)

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

- (1) **Statement I** is false but **Statement II** is true.
- (2) Both **Statement I** and **Statement II** are true
- (3) Both **Statement I** and **Statement II** are false.
- (4) **Statement I** is true but **Statement II** is false.

Answer (1)

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

Assertion A: Endometrium is necessary for implantation of blastocyst.

Reason R: In the absence of fertilization, the corpus luteum degenerates that causes disintegration of endometrium.

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

- (1) **A** is false but **R** is true.
- (2) Both **A** and **R** are true and **R** is the correct explanation of **A**.
- (3) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**.
- (4) **A** is true but **R** is false.

Answer (3)

184. Broad palm with single palm crease is visible in a person suffering from-
- (1) Thalassemia (2) Down's syndrome
(3) Turner's syndrome (4) Klinefelter's syndrome

Answer (2)

185. Which of the following statements are correct regarding female reproductive cycle?
- A. In non-primate mammals cyclical changes during reproduction are called oestrus cycle.
B. First menstrual cycle begins at puberty and is called menopause.
C. Lack of menstruation may be indicative of pregnancy.
D. Cyclic menstruation extends between menarche and menopause.

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

- (1) A, C and D only (2) A and D only
(3) A and B only (4) A, B and C only

Answer (1)

SECTION-B

186. Which of the following statements are correct regarding skeletal muscle?
- A. Muscle bundles are held together by collagenous connective tissue layer called fascicle.
B. Sarcoplasmic reticulum of muscle fibre is a store house of calcium ions.
C. Striated appearance of skeletal muscle fibre is due to distribution pattern of actin and myosin proteins.
D. M line is considered as functional unit of contraction called sarcomere.

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

- (1) C and D only (2) A, B and C only
(3) B and C only (4) A, C and D only

Answer (3)

187. Which of the following is characteristic feature of cockroach regarding sexual dimorphism?
- (1) Presence of anal cerci
(2) Dark brown body colour and anal cerci
(3) Presence of anal styles
(4) Presence of sclerites

Answer (3)

188. Which of the following statements are correct?
- A. An excessive loss of body fluid from the body switches off osmoreceptors.
B. ADH facilitates water reabsorption to prevent diuresis.
C. ANF causes vasodilation.
D. ADH causes increase in blood pressure.
E. ADH is responsible for decrease in GFR.

Choose the **correct** answer from the options given below:

- (1) C, D and E only (2) A and B only
(3) B, C and D only (4) A, B and E only

Answer (3)

189. Match **List I** with **List II**.

List I	List II
A. Logistic growth	I. Unlimited resource availability condition
B. Exponential growth	II. Limited resource availability condition
C. Expanding age pyramid	III. The percent individuals of pre-reproductive age is largest followed by reproductive and post reproductive age groups
D. Stable age pyramid	IV. The percent individuals of pre-reproductives and reproductive age group are same

Choose the **correct** answer from the options given below:

- (1) A-II, B-IV, C-III, D-I
- (2) A-II, B-I, C-III, D-IV
- (3) A-II, B-III, C-I, D-IV
- (4) A-II, B-IV, C-I, D-III

Answer (2)

190. The unique mammalian characteristics are:

- (1) pinna, monocondylic skull and mammary glands
- (2) hairs, tympanic membrane and mammary glands
- (3) hairs, pinna and mammary glands
- (4) hairs, pinna and indirect development

Answer (3)

191. Which one of the following is the sequence on corresponding coding strand, if the sequence on mRNA formed is as follows 5'AUCGAUCGAUCGAUCGAUCG AUCG 3'?

- (1) 3' ATCGATCGATCGATCGATCGATCG 5'
- (2) 5' UAGCUAGCUAGCUAGCUAGCUAGCUAGC 3'
- (3) 3' UAGCUAGCUAGCUAGCUAGCUAGCUAGC 5'
- (4) 5' ATCGATCGATCGATCGATCGATCGATCG 3'

Answer (4)

192. Given below are two statements:

Statement I : During G_0 phase of cell cycle, the cell is metabolically inactive.

Statement II : The centrosome undergoes duplication during S phase of interphase.

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.

Answer (1)

193. Select the correct statements with reference to chordates.
- Presence of a mid-dorsal, solid and double nerve cord.
 - Presence of closed circulatory system.
 - Presence of paired pharyngeal gill slits.
 - Presence of dorsal heart
 - Triploblastic pseudocoelomate animals.

Choose the **correct** answer from the options given below:

- C, D and E only
- A, C and D only
- B and C only
- B, D and E only

Answer (3)

194. Match **List I** with **List II**.

List I	List II
A. Mast cells	I. Ciliated epithelium
B. Inner surface of bronchiole	II. Areolar connective tissue
C. Blood	III. Cuboidal epithelium
D. Tubular parts of nephron	IV. Specialised connective tissue

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

- A-III, B-IV, C-II, D-I
- A-I, B-II, C-IV, D-III
- A-II, B-III, C-I, D-IV
- A-II, B-I, C-IV, D-III

Answer (4)

195. Which one of the following is NOT an advantage of inbreeding?
- It decreases the productivity of inbred population, after continuous inbreeding.
 - It decreases homozygosity.
 - It exposes harmful recessive genes but are eliminated by selection.
 - Elimination of less desirable genes and accumulation of superior genes takes place due to it.

Answer (1)

196. Which of the following statements are correct?
- Basophils are most abundant cells of the total WBCs
 - Basophils secrete histamine, serotonin and heparin
 - Basophils are involved in inflammatory response
 - Basophils have kidney shaped nucleus
 - Basophils are agranulocytes

Choose the **correct** answer from the options given below:

- A and B only
- D and E only
- C and E only
- B and C only

Answer (4)

197. Which of the following are NOT under the control of thyroid hormone?
- Maintenance of water and electrolyte balance
 - Regulation of basal metabolic rate
 - Normal rhythm of sleep-wake cycle
 - Development of immune system
 - Support the process of RBCs formation

Choose the **correct** answer from the options given below:

- | | |
|------------------|------------------|
| (1) D and E only | (2) A and D only |
| (3) B and C only | (4) C and D only |

Answer (4)

198. Select the correct statements.
- Tetrad formation is seen during Leptotene.
 - During Anaphase, the centromeres split and chromatids separate.
 - Terminalization takes place during Pachytene.
 - Nucleolus, Golgi complex and ER are reformed during Telophase.
 - Crossing over takes place between sister chromatids of homologous chromosome.

Choose the **correct** answer from the options given below:

- | | |
|------------------|---------------------|
| (1) B and E only | (2) A and C only |
| (3) B and D only | (4) A, C and E only |

Answer (3)

199. The parts of human brain that helps in regulation of sexual behaviour, expression of excitement, pleasure, rage, fear etc. are:
- Corpus callosum and thalamus
 - Limbic system and hypothalamus
 - Corpora quadrigemina and hippocampus
 - Brain stem and epithalamus

Answer (2)

200. In cockroach, excretion is brought about by-
- Phallic gland
 - Ureose gland
 - Nephrocytes
 - Fat body
 - Collateral glands

Choose the correct answer from the options given below :

- | | |
|---------------------|---------------------|
| (1) B and D only | (2) A and E only |
| (3) A, B and E only | (4) B, C and D only |

Answer (4)

