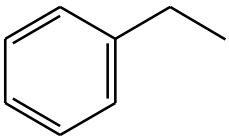
3) $HC \equiv C^{\ominus}Na^{+}$

4) 

Key: **4**

99. Given below are two statements :

Statement I : The nutrient deficient water bodies lead to eutrophication.

Statement II : Eutrophication leads to decrease in the level of oxygen in the water bodies.

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

1) Both Statement I and Statement II are false.

2) Statement I is correct but Statement II is false.

3) Statement I is incorrect but Statement II is true.

4) Both Statement I and Statement II are true.

Key: **3**

100. The reaction that does NOT take place in a blast furnace between 900 K to 1500 K temperature range during extraction of iron is :

1) $FeO + CO \rightarrow Fe + CO_2$

2) $C + CO_2 \rightarrow 2CO$

3) $CaO + SiO_2 \rightarrow CaSiO_3$

4) $Fe_2O_3 + CO \rightarrow 2FeO + CO_2$

Key: **4**

BOTANY

Max. Marks: 180

SECTION – A

You have to attempt all 35 questions from Section-A

Marking scheme: +4 for correct answer, -1 for Incorrect answer

101. Among eukaryotes, replication of DNA takes place in -

1) S phase
2) G_1 phase
3) G_2 phase
4) M phase

Key: **1**

102. Cellulose does not form blue colour with Iodine because

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

Key: **2**

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

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

Key: **2**

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

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

Key: **1**

105. 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) Both A and R are true but R is NOT the correct explanation of A.
2) A is true but R is false.
3) A is false but R is true.
4) Both A and R are true and R is the correct explanation of A.

Key: **4**

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

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

Key: **1**

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

1) Transcription of tRNA, 5 srRNA and SnRNA

2) Transcription of precursor of mRNA

3) Transcription of only snRNAs

4) Transcription of rRNAs (28S, 18S and 5.8S)

Key: **1**

108. Identify the pair of heterosporous pteridophytes among the following :

1) *Selaginella* and *Salvinia*

2) *Psilotum* and *Salvinia*

3) *Equisetum* and *Salvinia*

4) *Lycopodium* and *Selaginella*

Key: **1**

109. Given below are two statements :

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

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

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

1) Both Statement I and Statement II are incorrect.

2) Statement I is correct but Statement II is incorrect.

3) Statement I is incorrect but Statement II is correct.

4) Both Statement I and Statement II are correct.

Key: **4**

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

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

Key: **4**

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

1) Over exploitation for economic gain

2) Alien species invasions

3) Co-extinctions

4) Habitat loss and fragmentation

Key: **4**

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

1) Metaphase II

2) Anaphase II

3) Telophase

4) Metaphase I

Key: **2**

113. Spraying of which of the following phytohormone on juvenile conifers helps in hastening the maturity period, that leads to early seed production?

1) Gibberellic Acid
2) Zeatin
3) Abscisic Acid
4) Indole-3-Butyric Acid

Key: **1**

114. 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) B, C, D only
2) C, D, E only
3) D, E, A only
4) A, B, C only

Key: **4**

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

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

Key: **4**

116. Large, colourful, fragrant flowers with nectar are seen in:

1) bird pollinated plants
2) bat pollinated plants
3) wind pollinated plants
4) insect pollinated plants

Key: **4**

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

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

Key: **3**

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

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

Key: **4**

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

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

Key: **3**

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

1) Alfred Hershey and Martha Chase
2) Avery, Macleod and McCarthy
3) Wilkins and Franklin
4) Fredrick Griffith

Key: **1**

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

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

Key: **1**

122. 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) Both A and R are true but R is NOT the correct explanation of A
2) A is true but R is false.
3) A is false but R is true.
4) Both A and R are true and R is the correct explanation of A.

Key: **4**

123. The process of appearance of recombination nodules occurs at which substage of prophase I in meiosis?

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

Key: **2**

124. In the equation GPP-R=NPP

GPP is Gross Primary Productivity NPP is Net Primary Productivity R here is _____.

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

Key: **2**

125. The phenomenon of pleiotropism refers to

1) presence of two alleles, each of the two genes controlling a single trait.

2) a single gene affecting multiple phenotypic expression.

3) more than two genes affecting a single character.

4) presence of several alleles of a single gene controlling a single crossover.

Key: **2**

126. During the purification process for recombinanat DNA technology, addition of chilled ethanol precipitates out

1) DNA 2) Histones

3) Polysaccharides 4) RNA

Key: **1**

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

1) Antipodals, synergids, and primary endosperm nucleus

2) Synergids, Zygote and Primary endosperm nucleus

3) Synergids, antipodals and Polar nuclei

4) Synergids, Primary endosperm nucleus and zygote.

Key: **2**

128. Axile placentation is observed in

1) China rose, Beans and Lupin 2) Tomato, Dianthus and Pea

3) China rose, Petunia and Lemon 4) Mustard, Cucumber and Primrose

Key: **3**

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

1) Kinetin 2) Ethylene

3) 2, 4-D 4) GA_3

Key: **2**

130. Given below are two statements: One is labelled as **Assertion A** and the other is 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 the options given below:

1) Both A and R are correct but R is NOT the correct explanation of A

2) A is correct but R is not correct.

3) A is not correct but R is correct.

4) Both A and R are correct and R is the correct explanation of A.

Key: **1**

131. 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) Sutton and Boveri
2) Alfred Sturtevant
3) Henking
4) Thomas Hunt Morgan

Key: **2**

132. 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) Polyadelphous and Monothecous
2) Monoadelphous and Monothecous anthers
3) Epiphyllous and Dithecous anthers
4) Diadelphous and Dithecous anthers

Key: **4**

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

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

Key: **1**

134. Expressed Sequence Tags (ESTs) refers to

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

Key: **4**

135. 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) Both Statement I and Statement II are false.

2) Statement I is correct but Statement II is false.

3) Statement I is incorrect but Statement II is true.

4) Both Statement I and Statement II are true

Key: **3**

SECTION-B

Only 10 questions attempt from Section-B out of 15.

Marking scheme: +4 for correct answer, -1 for Incorrect answer

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

1) membrane, proton pump, proton gradient, NADP synthase

2) proton pump, electron gradient, ATP synthase

3) proton pump, electron gradient, NADP synthase

4) membrane, proton pump, proton gradient, ATP synthase

Key: **4**

137. How many different proteins does the ribosome consist of?

1) 60 2) 20

3) 40 4) 80

Key: **4**

138. 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 nodes instead of leaves.

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

1) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**.

2) **A** is true but **R** is false

3) **A** is false but **R** is true.

4) Both **A** and **R** are true and R is the correct explanation of **A**.

Key: **4**

139. 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 — III. Interval between stage mitosis and initiation of DNA replication

D. G_1 Phase — IV. Equational division

Choose the correct answer from the options given below.

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

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

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

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

Key: **2**

140. 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) C, A, B, D

2) C, B, D, A

3) B, D, A, C

4) B, C, D, A

Key: **2**

141. 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) Both statement-I and statement-II are false

2) Statement-I is correct abut statement-II is false

3) Statement-I is incorrect abut statement-II is true

4) Both statement-I and statement-II are true

Key: **2**

142. Match list-I with List-II

Lsit-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 form the options given below:

1) A-IV; B-III; C-II; D-I

2) A-III; B-I; C-IV; D-II

3) A-II; B-I; C-IV; D-III

4) A-II; B-IV; C-I; D-III

Key: **4**

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

1) Amylase 2) Lipase

3) Dinitrogenase 4) Succinic dehydrogenase

Key: **4**

144. Match List-I with List-II

List-I	List-II
A. Oxidative decarboxylation	I. Citrate synthase
B. Glycolysis	II. Pyruvate dehydrogenase
C. Oxidative phosphorylation	III. Electron transport system
D. Tricarboxylic acid cycle	IV. EMP pathway

Choose the correct answer form the options given below:

1) A-II; B-IV; C-I; D-II 2) A-III; B-I; C-II; D-IV

3) A-II; B-IV; C-III; D-I 4) A-III; B-IV; C-II; D-I

Key: **3**

145. 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.

1) C and D only 2) B and E only

3) A and F only 4) A and B only

Key: **2**

146. Which of the following statements is **NOT** correct?

1) Algal blooms caused by excess of organic matter in water improve water quality and promote fisheries.

2) Water hyacinth grows abundantly in eutrophic water bodies and leads to an imbalance in the ecosystem dynamics of the water body.

3) The amount of some toxic substances of industrial waste water increases in the organisms at successive trophic levels.

4) The micro- organisms involved in biodegradion of organic matter in a sewage polluted water body consume a lot of oxygen causing the death of aquatic organisms.

Key: **1**

147. Given below are two statements: One is labelled as **Assertion A** and the other is 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) Both **A** and **R** are true but **R** is NOT the correct explanation of **A** .

2) **A** is true but **R** is false.

3) A is false but **R** is true.

4) Both **A** and **R** are true and **R** is the correct explanation of A .

Key: **2**

148. 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 an ddifferentiation

Choose the correct answer from the options given 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-I, D-III

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

Key: **2**

149. Match List II with List III:

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

Key: **1**

150. 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) A and D only
2) A, B and D only
3) B and C only
4) B, C and E only

Key: **1**

ZOOLOGY **Max. Marks: 180**

SECTION – A

You have to attempt all 35 questions from Section-A

Marking scheme: +4 for correct answer, -1 for Incorrect answer

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

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

Key: **1**

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

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

Key: **4**

153. Broad palm with single palm crease is visible in a person suffering from-

1) Turner's syndrome
2) Klinefelter's syndrome
3) Thalassemia
4) Down's syndrome

Key: **4**

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

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

Key: **1**

155. Match List I with List II.

List I(Interacting species)	**List II (Name of Interaction) Competition parasitism**
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-I, B-II, C-IV, D-III
2) A-III, B-IV, C-I, D-II
3) A-II, B-III, C-I, D-IV
4) A-I, B-II, C-III, D-IV

Key: **4**

156. Match List I with List II.

List I (Cells)	**List II (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-I, C-III, D-IV

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

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

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

Key: **2**

157. 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) Both Statement I and Statement II are false.

2) Statement I is true but Statement II is false.

3) Statement I is false but Statement II is true

4) Both Statement I and Statement II are true.

Key: **3**

158. 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) Both Statement I and Statement II are false.

2) Statement I is true but Statement II is false.

3) Statement I false but Statement II is true.

4) Both Statement I and Statement II are true.

Key: **4**

159. 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-III, B-IV, C-II, D-I
2) A-II, B-III, C-I, D-IV
3) A-IV, B-II, C-I, D-III
4) A-III, B-I, C-IV, D-II

Key: **1**

160. Match List I with List II.

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

Choose the correct answer from the options given below:

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

Key: **4**

161. 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-III, B-II, C-IV, D-I
2) A-II, B-IV, C-I, D-III
3) A-IV, B-II, C-III, D-I
4) A-IV, B-III, C-II, D-I

Key: **4**

162. 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) Both Statement I and Statement II are false.

2) Statement I is correct but Statement II is false.

3) Statement I incorrect but Statement II is true.

4) Both Statement I and Statement II are true.

Key: **4**

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

1) Serum and Urine analysis

2) Polymerase Chain Reaction (PCR) technique

3) Enzyme Linked Immuno-Sorbent Assay (ELISA) technique

4) Recombinant DNA Technology

Key: **1**

164. 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, C and E only

2) A and D only

3) A, D and E only

4) B and D only

Key: **1**

165. 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-I, B-II, C-III, D-IV

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

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

4). A-II, B-I, C-IV, D-III

Key: **4**

166. 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) Both Statement I and Statement II are false.

(2) Statement I is true but Statement II is false.

(3) Statement I is false but Statement II is true.

(4) Both Statement I and Statement II are true.

Key: **4**

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

(1) Protein synthesis

(2) Motility

(3) Transportation

(4) Nuclear division

Key: **2**

168. 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) Both Statement I and Statement II are false.

(2) Statement I is true but Statement II is false.

(3) Statement I is false but Statement II is true.

(4) Both Statement I and Statement II are true.

Key: **1**

169. Match Gist 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-I, D-III

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

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

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

Key: **1**

170. 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-II, B-III, C-IV, D-I

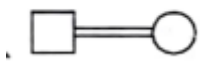
(2) A-III, B-IV, C-I, D-II

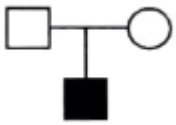
(3) A-III, B-I, C-IV, D-II

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

Key: **1**

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

1) 

2) 

3) 

4) 

Key: **1**

172. 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 blastocyat

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) Both A and R are true but R is NOT the correct explanation of A

2) A is true but R is false

3) A is false but R is true

4) Both A and R are true but R is the correct explanation of A

Key: **1**

173. Given below are 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) Both **A** and **R** are true but **R** is NOT the correct explanation of **A.**

2) **A** is true but **R** is false

3) **A** is false but **R** is true

4) Both **A** and **R** are true but **R** is the correct explanation of **A.**

Key: **2**

174. Radial symmetry is NOT found in adults of phylum_____

1) Hemichordata
2) Colenterata
3) Echinodermata
4) Ctenophora

Key: **1**

175. 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
B. Iris	II. External layer of eye formed of dense connective tissue
C. Blind spot	III. Point of greatest visual acuity of 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-IV, B- III, C- II, D-I
2) A-I, B- IV, C- III, D-II
3) A-II, B- I, C- III, D-IV
4) A-III, B- I, C- IV, D-II

Key: **4**

176. Which of the following statements is correct?

1) Biomagnification refers to increase in concentration of the toxicant at successive trophic levels

2) Presence of large amount of nutrients in water restricts'Algal Bloom'

3) Algal Bloom decreases fish mortality

4) Eutrophication refers to increase in domestic sewage and waste water in lakes.

Key: **1**

177. Which of the following statemetns are correct regarding female reproductive cycle?

A. In non-primate mammals cyclical changes during reproduction are called ocstrus 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 and B only
2) A, B and C only
3) A, C and D only
4) A and D only

Key: **3**

178. 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, chose the correct answer from the options given below.

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

Key: **3**

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

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

Key: **1**

180. Match List I with List II

List I	**List II**
A. *Taenia*	I. Nephridia
B. *Paramoecium*	II. Contractile vacuole
C. *Periplaneta*	III. Flame cells
D. *Pheretima*	IV. Urecose gland

Choose the correct answer from the options give below:

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

Key: **2**

181. Given below are two statements: one is labelled as Assertion **A** and the 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) Both **A** and **R** are true and **R** is NOT the correct explanation of **A**.

2) **A** is true but **R** is false.

3) **A** is false but **R** is true.

4) Both **A** and **R** are true and **R** is the correct explanation of **A**.

Key: **3**

182. which of the following is not a cloning vector?

1) YAC
2) pBR322
3) Probe
4) BAC

Key: **3**

183. 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 raditions

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

1) Both Statement I and Statement II are incorrect

2) Statement I is correct but Statement II is incorrect

3) Statement I is in correct but Statement II is incorrect

4) Both Statement I and Statement II are correct

Key: **2**

184. Match List I with List III.

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

Key: **4**

185. Vital capacity of lung is

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

Key: **3**

186. 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) Both Statement I and Statement II are incorrect.

(2) Statement I is correct but Statement II is incorrect.

(3) Statement I is incorrect but Statement II is correct.

(4) Both Statement I and Statement II are correct.

Key: **3**

187. The parts of human brain that helps in regulation of sexual behaviour, expression of excitement, pleasure, rage, fear etc. are :

(1) Corpora quadrigemina & hippocampus

(2) Brain stem & epithalamus

(3) Corpus callosum and thalamus

(4) Limbic system & hypothalamus

Key: **4**

188. In cockroach, excretion is brought about by

A. Phallic gland B. Urecose gland

C. Nephrocytes D. Fat body

E. Collaterial glands

Choose the correct answer from the options given below:

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

(3) B and D only (4) A and E only

Key: **2**

189. 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) B, C and D only (2) A, B and E only

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

Key: **1**

190. Which one of the following is NOT an advantage of inbreeding?

(1) It exposes harmful recessive genes that are eliminated by selection.

(2) Elimination of less desirable genes and accumulation of superior genes takes place due to it.

(3) It decreases the productivity of inbred population, after continuous inbreeding.

(4) It decreases homozygosity.

Key: **3**

191. 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) B and C only

(2) A, C and D only

(3) C and D only

(4) A, B and C only

Key: **1**

192 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-III, C-I, D-IV

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

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

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

Key: **4**

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

1) 3'UAGCUAGCUAGCUAGCUA GCUAGCUAGC 5'

2) 5' ATCGATCGATCGATCGATCG ATCGATCG 3'

3) 3' ATCGATCGATCGATCGATCG ATCGATCG 5,

4) 5' UAGCUAGCUAGCUAGCUA GCUAGC UAGC 3'

Key: **2**

194. Which of the following statements are correct?

A. Basophils are most abundant cells of the total WBCs

B. Basophils secrete histamine, serotonin and heparin

C. Basophils are involved in inflammatory response

D. Basophils have kidney shaped nucleus

E. Basophils are agranulocytes

Choose the correct answer from the options given below:

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

Key: **2**

195. 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:

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

Key: **2**

196. Which of the following is characteristic feature of cockroach regarding sexual dimorphism ?

1) Presence of anal styles
2) Presence of sclerites
3) Presence of anal cerci
4) Dark brown body colour and anal cerci

Key: **1**

197. Which of the following are NOT under the control of thyroid hormone?

A. Maintenance of water and electrolyte balance
B. Regulation of basal metabolic rate
C. Normal rhythm of sleep-wake cycle
D. Development of immune system
E. Support the process of R.B.Cs formation

Choose the correct answer from the options given below:

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

Key: **2**

198. Select the correct statements.

A. Tetrad formation is seen during Leptotene.

B. During Anaphase, the centromeres split and chromatids separate.

C. Terminalization takes place during Pachytene.

D. Nucleolus, Golgi complex and ER are reformed during Telophase.

E. Crossing over takes place between sister chromatids of homologous chromosome.

Choose the correct answer from the options given below:

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

Key: **1**

199. The unique mammalian characteristics are:

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

Key: **1**

200. Select the correct statements with reference to chordates.

A. Presence of a mid-dorsal, solid and double nerve cord.

B. Presence of closed circulatory system.

C. Presence of paired pharyngeal gillslits.

D. Presence of dorsal heart

E. Triploblastic pseudocoelomate animals.

Choose the correct answer from the options given below:

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

Key: **1**