

## ZOOLOGY

### SECTION-A

151. The flippers of the Penguins and Dolphins are the example of the

- (1) Divergent evolution
- (2) Adaptive radiation
- (3) Natural selection
- (4) Convergent evolution

**Answer (4)**

152. Match List I with List II :

|    | List I        |      | List II      |
|----|---------------|------|--------------|
| A. | Pleurobrachia | I.   | Mollusca     |
| B. | Radula        | II.  | Ctenophora   |
| C. | Stomochord    | III. | Osteichthyes |
| D. | Air bladder   | IV.  | Hemichordata |

Choose the correct answer from the options given below :

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

**Answer (3)**

153. Which of the following is not a component of Fallopian tube?

- (1) Ampulla
- (2) Uterine fundus
- (3) Isthmus
- (4) Infundibulum

**Answer (2)**

154. Following are the stages of pathway for conduction of an action potential through the heart

- |              |                    |
|--------------|--------------------|
| A. AV bundle | B. Purkinje fibres |
| C. AV node   | D. Bundle branches |
| E. SA node   |                    |

Choose the correct sequence of pathway from the options given below

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

**Answer (2)**

155. Given below are two statements:

**Statement I:** The presence or absence of hymen is not a reliable indicator of virginity.

**Statement II:** The hymen is torn during the first coitus only.

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 (4)**

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

| List I                        | List II            |
|-------------------------------|--------------------|
| A. $\alpha$ -I antitrypsin    | I. Cotton bollworm |
| B. Cry IAb                    | II. ADA deficiency |
| C. Cry IAc                    | III. Emphysema     |
| D. Enzyme replacement therapy | IV. Corn borer     |

Choose the correct answer from the options given below:

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

**Answer (4)**

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

**Assertion A :** FSH acts upon ovarian follicles in female and Leydig cells in male.

**Reason R :** Growing ovarian follicles secrete estrogen in female while interstitial cells secrete androgen in male human being.

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 (1)**

158. Match List I with List II :

| List I       | List II                          |
|--------------|----------------------------------|
| A. Cocaine   | I. Effective sedative in surgery |
| B. Heroin    | II. <i>Cannabis sativa</i>       |
| C. Morphine  | III. <i>Erythroxylum</i>         |
| D. Marijuana | IV. <i>Papaver somniferum</i>    |

Choose the correct answer from the options given below:

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

**Answer (1)**

159. Match List I with List II :

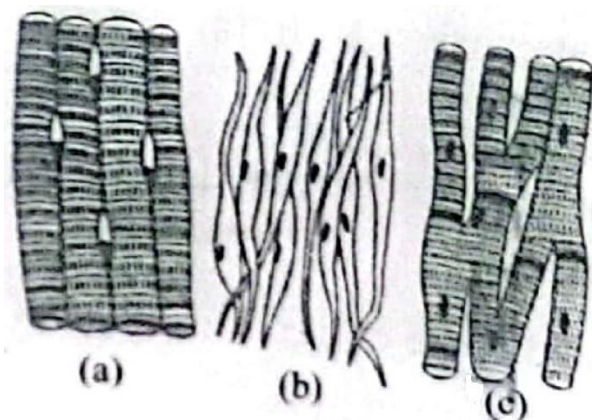
|    | List-I   |      | List-II             |
|----|----------|------|---------------------|
| A. | Lipase   | I.   | Peptide bond        |
| B. | Nuclease | II.  | Ester bond          |
| C. | Protease | III. | Glycosidic bond     |
| D. | Amylase  | IV.  | Phosphodiester bond |

Choose the correct answer from the options given below :

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

**Answer (4)**

160. Three types of muscles are given as a, b and c. Identify the correct matching pair along with their location in human body:



Name of muscle/location

- (1) (a) Involuntary – Nose tip  
(b) Skeletal – Bone  
(c) Cardiac – Heart
- (2) (a) Smooth - Toes  
(b) Skeletal – Legs  
(c) Cardiac – Heart
- (3) (a) Skeletal - Triceps  
(b) Smooth – Stomach  
(c) Smooth – Heart
- (4) (a) Skeletal - Biceps  
(b) Involuntary – Intestine  
(c) Cardiac – Heart

**Answer (3)**

161. Match List I with List II :

| List I                 | List II         |
|------------------------|-----------------|
| A. <i>Pterophyllum</i> | I. Hag fish     |
| B. <i>Myxine</i>       | II. Saw fish    |
| C. <i>Pristis</i>      | III. Angel fish |
| D. <i>Exocoetus</i>    | IV. Flying fish |

Choose the correct answer from the options given below :

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

**Answer (3)**

162. Match List I with List II :

| List I                    | List II                                              |
|---------------------------|------------------------------------------------------|
| A. Fibrous joints         | I. Adjacent vertebrae, limited movement              |
| B. Cartilaginous joints   | II. Humerus and Pectoral girdle, rotational movement |
| C. Hinge joints           | III. Skull, don't allow any movement                 |
| D. Ball and socket joints | IV. Knee, help in locomotion                         |

Choose the correct answer from the options given below :

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

**Answer (1)**

163. Following are the stages of cell division :

- A. Gap 2 phase
- B. Cytokinesis
- C. Synthesis phase
- D. Karyokinesis
- E. Gap 1 phase

Choose the correct sequence of stages from the options given below :

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

**Answer (1)**

164. The "Ti plasmid" of *Agrobacterium tumefaciens* stands for

- (1) Temperature independent plasmid
- (2) Tumour inhibiting plasmid
- (3) Tumor independent plasmid
- (4) Tumor inducing plasmid

**Answer (4)**

165. Match List I with List II :

|    | List I       |      | List II                                                               |
|----|--------------|------|-----------------------------------------------------------------------|
| A. | Pons         | I.   | Provides additional space for Neurons, regulates posture and balance. |
| B. | Hypothalamus | II.  | Controls respiration and gastric secretions.                          |
| C. | Medulla      | III. | Connects different regions of the brain.                              |
| D. | Cerebellum   | IV.  | Neuro secretory cells                                                 |

Choose the correct answer from the options given below :

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

**Answer (3)**

166. Match List I with List II :

| List I               | List II                |
|----------------------|------------------------|
| A. Axoneme           | I. Centriole           |
| B. Cartwheel pattern | II. Cilia and flagella |
| C. Crista            | III. Chromosome        |
| D. Satellite         | IV. Mitochondria       |

Choose the correct answer from the options given below :

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

**Answer (1)**

167. Consider the following statements :

- A. Annelids are true coelomates
- B. Poriferans are pseudocoelomates
- C. Aschelminthes are acoelomates
- D. Platyhelminthes are pseudocoelomates

Choose the correct answer from the options given below :

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

**Answer (3)**

168. Which of the following is not a steroid hormone?

- (1) Glucagon
- (2) Cortisol
- (3) Testosterone
- (4) Progesterone

**Answer (1)**

169. Given below are two statements :

**Statement I :** In the nephron, the descending limb of loop of Henle is impermeable to water and permeable to electrolytes.

**Statement II :** The proximal convoluted tubule is lined by simple columnar brush border epithelium and increases the surface area for reabsorption.

In the light of the above statements, choose the correct answer from the option 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)**

170. Match List I with List II :

**List I**

- A. Common cold
- B. Haemozoin
- C. Widal test
- D. Allergy

**List II**

- I. *Plasmodium*
- II. Typhoid
- III. Rhinoviruses
- IV. Dust mites

Choose the correct answer from the options given below :

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

**Answer (4)**

171. Match List I with List II :

|    | List I                       |      | List II                                                               |
|----|------------------------------|------|-----------------------------------------------------------------------|
| A. | Expiratory capacity          | I.   | Expiratory reserve volume + Tidal volume + Inspiratory reserve volume |
| B. | Functional residual capacity | II.  | Tidal volume + Expiratory reserve volume                              |
| C. | Vital capacity               | III. | Tidal volume + Inspiratory reserve volume                             |
| D. | Inspiratory capacity         | IV.  | Expiratory reserve volume + Residual volume                           |

Choose the correct answer from the options given below :

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

**Answer (2)**

|    | <b>List I</b><br><b>(Sub Phases of Prophase I)</b> |      | <b>List II</b><br><b>(Specific Characters)</b> |
|----|----------------------------------------------------|------|------------------------------------------------|
| A. | Diakinesis                                         | I.   | Synaptonemal complex formation                 |
| B. | Pachytene                                          | II.  | Completion of terminalisation of chiasmata     |
| C. | Zygotene                                           | III. | Chromosomes look like thin threads             |
| D. | Leptotene                                          | IV.  | Appearance of recombination nodules            |

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

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

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

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

- (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

- (1) Constant gene pool
- (2) Genetic recombination
- (3) Genetic drift
- (4) Gene migration

|    | <b>List I</b> |      | <b>List II</b> |
|----|---------------|------|----------------|
| A. | Typhoid       | I.   | Fungus         |
| B. | Leishmaniasis | II.  | Nematode       |
| C. | Ringworm      | III. | Protozoa       |
| D. | Filariasis    | IV.  | Bacteria       |

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

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176. Given below are some stages of human evolution.  
Arrange them in correct sequence. (Past to Recent)

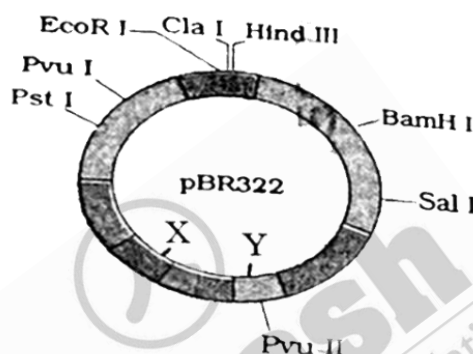
A. *Homo habilis*  
B. *Homo sapiens*  
C. *Homo neanderthalensis*  
D. *Homo erectus*

Choose the correct sequence of human evolution from the options given below:

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

**Answer (1)**

177. The following diagram showing restriction sites in *E. coli* cloning vector pBR322. Find the role of 'X' and 'Y' genes :



- (1) Gene 'X' is responsible for recognitions sites and 'Y' is responsible for antibiotic resistance.  
(2) The gene 'X' is responsible for resistance to antibiotics and 'Y' for protein involved in the replication of Plasmid.  
(3) The gene 'X' is responsible for controlling the copy number of the linked DNA and 'Y' for protein involved in the replication of Plasmid.  
(4) The gene 'X' is for protein involved in replication of Plasmid and 'Y' for resistance to antibiotics.

**Answer (3)**

178. Which of the following factors are favourable for the formation of oxyhaemoglobin in alveoli?

- (1) Low  $p\text{CO}_2$  and High temperature  
(2) High  $p\text{O}_2$  and High  $p\text{CO}_2$   
(3) High  $p\text{O}_2$  and Lesser  $\text{H}^+$  concentration  
(4) Low  $p\text{CO}_2$  and High  $\text{H}^+$  concentration

**Answer (3)**

179. In both sexes of cockroach, a pair of jointed filamentous structures called anal cerci are present on

- (1) 11<sup>th</sup> segment  
(2) 5<sup>th</sup> segment  
(3) 10<sup>th</sup> segment  
(4) 8<sup>th</sup> and 9<sup>th</sup> segment

**Answer (3)**

|    | List I                 |      | List II                     |
|----|------------------------|------|-----------------------------|
| A. | Down's syndrome        | I.   | 11 <sup>th</sup> chromosome |
| B. | $\alpha$ -Thalassemia  | II.  | 'X' chromosome              |
| C. | $\beta$ -Thalassemia   | III. | 21 <sup>st</sup> chromosome |
| D. | Klinefelter's syndrome | IV.  | 16 <sup>th</sup> chromosome |

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

(1) Vaults (2) Coitus interruptus  
(3) Periodic abstinence (4) Lactational amenorrhea

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

- (1) Bio-reactors have an agitator system, an oxygen delivery system and foam control system
- (2) A bio-reactor provides optimal growth conditions for achieving the desired product
- (3) Most commonly used bio-reactors are of stirring type
- (4) Bio-reactors are used to produce small scale bacterial cultures

|    | List I                |      | List II       |
|----|-----------------------|------|---------------|
| A. | Non-medicated IUD     | I.   | Multiload 375 |
| B. | Copper releasing IUD  | II.  | Progestogens  |
| C. | Hormone releasing IUD | III. | Lippes loop   |
| D. | Implants              | IV.  | LNG-20        |

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

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185. Which one is the correct product of DNA dependent RNA polymerase to the given template?

3'TACATGGCAAATATCCATTCA5'

- (1) 5'ATGTACCGTTTATAGGTAAGT3'
- (2) 5'AUGUACCGUUUAUAGGUAAGU3'
- (3) 5'AUGUAAAGUUUAUAGGUAAGU3'
- (4) 5'AUGUACCGUUUAUAGGGAAGU3'

**Answer (2)**

## SECTION-B

186. Given below are two statements:

**Statement I:** The cerebral hemispheres are connected by nerve tract known as corpus callosum.

**Statement II:** The brain stem consists of the medulla oblongata, pons and cerebrum.

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)**

187. Given below are two statements:

**Statement I:** Gause's competitive exclusion principle states that two closely related species competing for different resources cannot exist indefinitely.

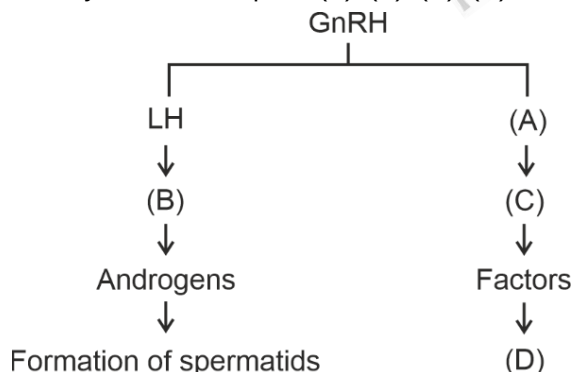
**Statement II:** According to Gause's principle, during competition, the inferior will be eliminated. This may be true if resources are limiting.

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)**

188. Identify the correct option (A), (B), (C), (D) with respect to spermatogenesis.



- (1) ICSH, Leydig cells, Sertoli cells, spermatogenesis.
- (2) FSH, Leydig cells, Sertoli cells, spermiogenesis.
- (3) ICSH, Interstitial cells, Leydig cells, spermiogenesis.
- (4) FSH, Sertoli cells, Leydig cells, spermatogenesis.

**Answer (2)**

189. The following are the statements about non-chordates:

- A. Pharynx is perforated by gill slits.
- B. Notochord is absent.
- C. Central nervous system is dorsal.
- D. Heart is dorsal if present.
- E. Post anal tail is absent.

Choose the most appropriate answer from the options given below:

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

**Answer (4)**

190. Match List I with List II:

|    | List I                             |      | List II                          |
|----|------------------------------------|------|----------------------------------|
| A. | Unicellular glandular epithelium   | I.   | Salivary glands                  |
| B. | Compound epithelium                | II.  | Pancreas                         |
| C. | Multicellular glandular epithelium | III. | Goblet cells of alimentary canal |
| D. | Endocrine glandular epithelium     | IV.  | Moist surface of buccal cavity   |

Choose the correct answer from the options given below:

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

**Answer (4)**

191. Match List I with List II :

|    | List I      |      | List II                                |
|----|-------------|------|----------------------------------------|
| A. | P wave      | I.   | Heart muscles are electrically silent. |
| B. | QRS complex | II.  | Depolarisation of ventricles.          |
| C. | T wave      | III. | Depolarisation of atria.               |
| D. | T-P gap     | IV.  | Repolarisation of ventricles.          |

Choose the correct answer from the options given below :

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

**Answer (3)**

192. Match List I with List II :

|    | List I              |      | List II                                                    |
|----|---------------------|------|------------------------------------------------------------|
| A. | Exophthalmic goiter | I.   | Excess secretion of cortisol, moon face & hyperglycemia.   |
| B. | Acromegaly          | II.  | Hypo-secretion of thyroid hormone and stunted growth.      |
| C. | Cushing's syndrome  | III. | Hyper secretion of thyroid hormone & protruding eye balls. |
| D. | Cretinism           | IV.  | Excessive secretion of growth hormone.                     |

Choose the correct answer from the options given below :

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

### Answer (1)

193. Match List I with List II:

|    | <b>List I</b>   |      | <b>List II</b>      |
|----|-----------------|------|---------------------|
| A. | Mesozoic Era    | I.   | Lower invertebrates |
| B. | Proterozoic Era | II.  | Fish & Amphibia     |
| C. | Cenozoic Era    | III. | Birds & Reptiles    |
| D. | Paleozoic Era   | IV.  | Mammals             |

Choose the correct answer from the options given below :

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

### Answer (1)

194. Match List I with List II related to digestive system of cockroach.

|    | <b>List I</b>                                                                     |      | <b>List II</b>     |
|----|-----------------------------------------------------------------------------------|------|--------------------|
| A. | The structures used for storing of food                                           | I.   | Gizzard            |
| B. | Ring of 6-8 blind tubules at junction of foregut and midgut.                      | II.  | Gastric Caeca      |
| C. | Ring of 100-150 yellow coloured thin filaments at junction of midgut and hindgut. | III. | Malpighian tubules |
| D. | The structures used for grinding the food.                                        | IV.  | Crop               |

Choose the correct answer from the options given below:

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

**Answer (2)**

195. Given below are two statements :

**Statement I :** Bone marrow is the main lymphoid organ where all blood cells including lymphocytes are produced.

**Statement II :** Both bone marrow and thymus provide micro environments for the development and maturation of T-lymphocytes.

In the light of 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)**

196. Match List I with List II:

|    | List I                       |      | List II      |
|----|------------------------------|------|--------------|
| A. | RNA polymerase III           | I.   | snRNPs       |
| B. | Termination of transcription | II.  | Promotor     |
| C. | Splicing of Exons            | III. | Rho factor   |
| D. | TATA box                     | IV.  | SnRNAs, tRNA |

Choose the correct answer from the options given below :

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

**Answer (1)**

197. Choose the correct statement given below regarding juxta medullary nephron.

- (1) Juxta medullary nephrons outnumber the cortical nephrons.
- (2) Juxta medullary nephrons are located in the columns of Bertini.
- (3) Renal corpuscle of juxta medullary nephron lies in the outer portion of the renal medulla.
- (4) Loop of Henle of juxta medullary nephron runs deep into medulla.

**Answer (4)**

198. Given below are two statements:

**Statement I:** Mitochondria and chloroplasts both double membranes bound organelles.

**Statement II:** Inner membrane of mitochondria is relatively less permeable, as compared chloroplast.

In the light of the above statements, choose the mis 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)**

199. Regarding catalytic cycle of an enzyme action, select the correct sequential steps :

- A. Substrate enzyme complex formation.
- B. Free enzyme ready to bind with another substrate.
- C. Release of products.
- D. Chemical bonds of the substrate broken.
- E. Substrate binding to active site.

Choose the correct answer from the options given below :

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

**Answer (2)**

200. As per ABO blood grouping system, the blood group of father is B<sup>+</sup>, mother is A<sup>+</sup> and child is O<sup>+</sup>. Their respective genotype can be

- |                                |                             |
|--------------------------------|-----------------------------|
| A. $I^B i / I^A i / ii$        | B. $I^B I^B / I^A I^A / ii$ |
| C. $I^A I^B / ii I^A / I^B i$  | D. $I^A i / I^B i / I^A i$  |
| E. $ii I^B / ii I^A / I^A I^B$ |                             |

Choose the most appropriate answer from the options given below :

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

**Answer (2)**

