

**SUBJECT : BOTANY****SECTION - A**

101. Lecithin, a small molecular weight organic compound found in living tissues, is an example of :

- (1) Amino acids      (2) Phospholipids      (3) Glycerides      (4) Carbohydrates

**Ans. (2)**

**Sol.** Lecithin is a type of phospholipid

102. Which of the following are required for the dark reaction of photosynthesis ?

- A. Light      B. Chlorophyll      C. CO<sub>2</sub>      D. ATP  
E. NADPH

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

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

**Ans. (3)**

**Sol.** Light and chlorophyll are used in light reaction.

103. Spindle fibers attach to kinetochores of chromosomes during

- (1) Prophase      (2) Metaphase      (3) Anaphase      (4) Telophase

**Ans. (2)**

**Sol.** Spindle fibers attach to kinetochores of chromosomes during Metaphase.

104. Bulliform cells are responsible for

- (1) Inward curling of leaves in monocots.  
(2) Protecting the plant from salt stress.  
(3) Increased photosynthesis in monocots.  
(4) Providing large spaces for storage of sugars.

**Ans. (1)**

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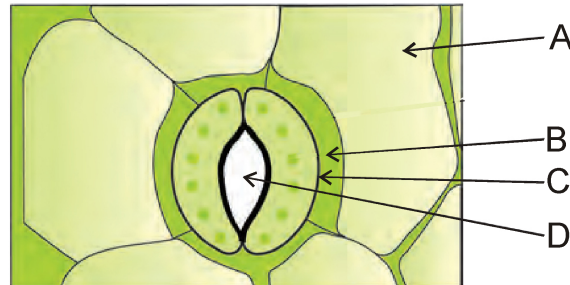
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**Sol.** Bulliform cells become flaccid due to water stress and make the leaves curl inward to minimise water loss.

105. In the given figure, which component has thin outer walls and highly thickened inner walls ?



(1) C

(2) D

(3) A

(4) B

**Ans. (1)**

**Sol.** Guard cell has thin outer walls and highly thickened inner walls.

106. What is the fate of a piece of DNA carrying only gene of interest which is transferred into an alien organism ?

A. The piece of DNA would be able to multiply itself independently in the progeny cells of the organism.

B. It may get integrated into the genome of the recipient.

C. It may multiply and be inherited along with the host DNA.

D. The alien piece of DNA is not an integral part of chromosome.

E. It shows ability to replicate.

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

(1) A and B only

(2) D and E only

(3) B and C only

(4) A and E only

**Ans. (3)**



107. Given below are two statements :

**Statement I** : Bt toxins are insect group specific and coded by a gene cry IAc.

**Statement II** : Bt toxin exists as inactive protoxin in *B. thuringiensis*. However, after ingestion by the insect the inactive protoxin gets converted into active form due to acidic pH of the insect gut.

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

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

**Ans. (3)**

**Sol.** Statement II inactive protoxin gets converted into active form due to alkaline pH of the insect gut.

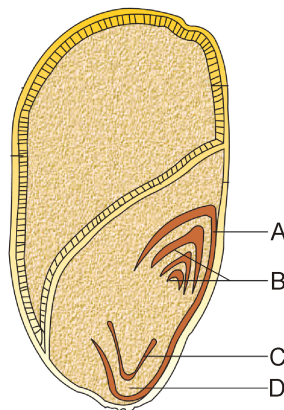
108. List of endangered species was released by-

- (1) GEAC
- (2) WWF
- (3) FOAM
- (4) IUCN

**Ans. (4)**

**Sol.** List of endangered species was released by IUCN.

109. Identify the part of the seed from the given figure which is destined to form root when the seed germinates.



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

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**Ans. (3)**

**Sol.** C is radicle and root originates from this part.

110. Match List I with List II

**List I**

A. *Clostridium butylicum*

B. *Saccharomyces cerevisiae*

C. *Trichoderma polysporum*

D. *Streptococcus sp.*

**List II**

I. Ethanol

II. Streptokinase

III. Butyric acid

IV. Cyclosporin-A

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

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

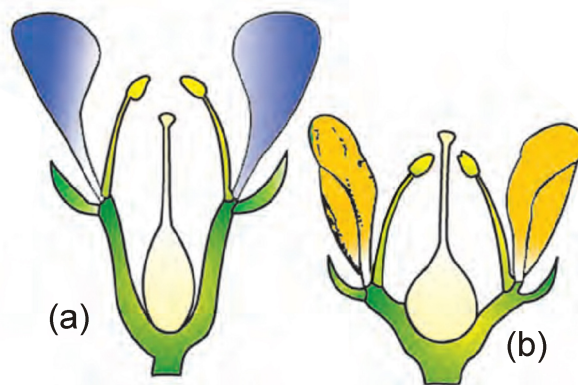
(2) A-II, B-IV, C-III, D-I

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

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

**Ans. (3)**

111. Identify the type of flowers based on the position of calyx, corolla and androecium with respect to the ovary from the given figures (a) and (b)



(1) (a) Epigynous; (b) Hypogynous

(2) (a) Hypogynous; (b) Epigynous

(3) (a) Perigynous; (b) Epigynous

(4) (a) Perigynous; (b) Perigynous

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**Ans. (4)**

**Sol.** Both (a) and (b) are diagram of perigynous.

112. Auxin is used by gardeners to prepare weed-free lawns. But no damage is caused to grass as auxin

- (1) promotes apical dominance.
- (2) promotes abscission of mature leaves only.
- (3) does not affect mature monocotyledonous plants.
- (4) can help in cell division in grasses, to produce growth.

**Ans. (3)**

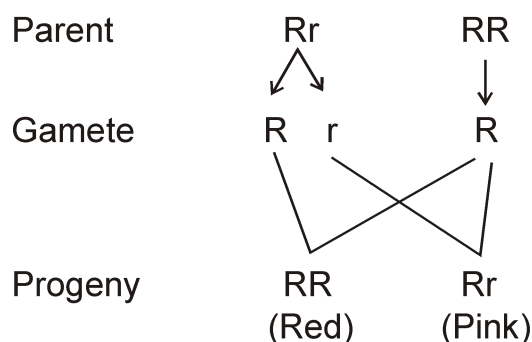
**Sol.** Auxin widely used to kill dicotyledonous weeds, does not affect mature monocotyledonous plants.

113. A pink flowered Snapdragon plant was crossed with a red flowered Snapdragon plant. What type of phenotype/s is/are expected in the progeny?

- (1) Only red flowered plants
- (2) Red flowered as well as pink flowered plants
- (3) Only pink flowered plants
- (4) Red, Pink as well as white flowered plants

**Ans. (2)**

**Sol.** Ex. of incomplete dominance





114. Which one of the following is **not** a criterion for classification of fungi?

- (1) Morphology of mycelium
- (2) Mode of nutrition
- (3) Mode of spore formation
- (4) Fruiting body

**Ans. (2)**

**Sol.** Criterion for classification of fungi

- (i) Morphology of mycelium
- (ii) Mode of spore formation
- (iii) Fruiting body

115. The lactose present in the growth medium of bacteria is transported to the cell by the action of:

- (1) Beta-galactosidase
- (2) Acetylase
- (3) Permease
- (4) Polymerase

**Ans. (3)**

**Sol.** The lactose present in the growth medium of bacteria is transported to the cell by the action of Permease.

116. In a plant, black seed color (BB/Bb) is dominant over white seed color (bb). In order to find out the genotype of the black seed plant, with which of the following genotype will you cross it?

- (1) BB
- (2) bb
- (3) Bb
- (4) BB

**Ans. (2)**

**Sol.** To identify genotype of unknown plant test cross is used.



117. Given below are two statements:

**Statement I :** Parenchyma is living but collenchyma is dead tissue.

**Statement II :** Gymnosperms lack xylem vessels but presence of xylem vessels is the characteristic of angiosperms.

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

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

**Ans. (4)**

**Sol.** Statement I is incorrect because both parenchyma and collenchyma are living.

118. How many molecules of ATP and NADPH are required for every molecule of  $\text{CO}_2$  fixed in the Calvin cycle?

- (1) 2 molecules of ATP and 3 molecules of NADPH
- (2) 2 molecules of ATP and 2 molecules of NADPH
- (3) 3 molecules of ATP and 3 molecules of NADPH
- (4) 3 molecules of ATP and 2 molecules of NADPH

**Ans. (4)**

**Sol.** For each molecule of  $\text{CO}_2$  fixation 3 molecule of ATP & 2 molecule of NADPH are required during calvin cycle.

119. A transcription unit in DNA is defined primarily by the three regions in DNA and these are with respect to upstream and down stream end;

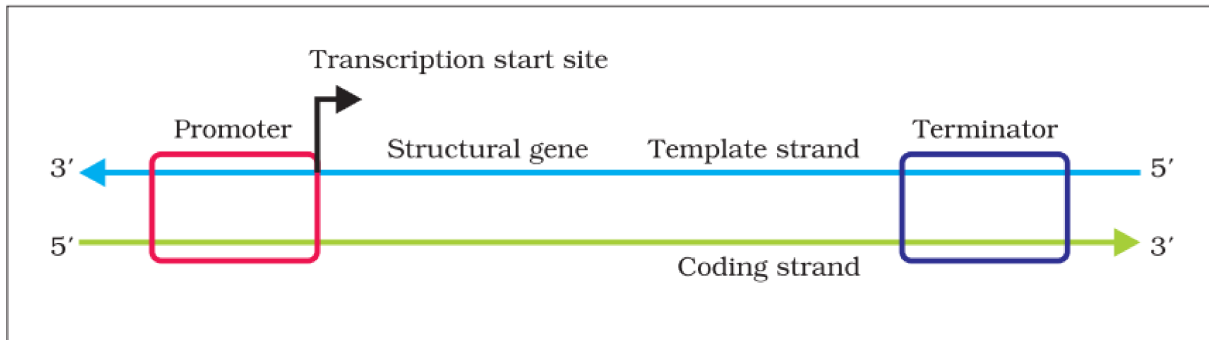
- (1) Repressor, Operator gene, Structural gene
- (2) Structural gene, Transposons, Operator gene
- (3) Inducer, Repressor, Structural gene
- (4) Promotor, Structural gene, Terminator

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**Ans. (4)****Sol.**

120. Tropical regions show greatest level of species richness because

- A. Tropical latitudes have remained relatively undisturbed for millions of years, hence more time was available for species diversification.
- B. Tropical environments are more seasonal.
- C. More solar energy is available in tropics.
- D. Constant environments promote niche specialization.
- E. Tropical environments are constant and predictable.

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

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

**Ans. (1)**

**Sol.** Option B is incorrect because tropical environments are less seasonal.

121. The equation of Verhulst-Pearl logistic growth is  $\frac{dN}{dt} = rN \left[ \frac{K - N}{K} \right]$ .

From this equation, K indicates:

- |  |                        |
|--|------------------------|
| (1) Intrinsic rate of natural increase | (2) Biotic potential   |
| (3) Carrying capacity                  | (4) Population density |

**Ans. (3)****MATRIX NEET DIVISION**

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Sol.  $\frac{dN}{dt} = rN \left[ \frac{K - N}{K} \right]$

K is Carrying capacity.

122. Inhibition of Succinic dehydrogenase enzyme by malonate is a classical example of:

- (1) Cofactor inhibition (2) Feedback inhibition  
(3) Competitive inhibition (4) Enzyme activation

Ans. (3)

123. Which one of the following can be explained on the basis of Mendel's Law of Dominance?

- A. Out of one pair of factors one is dominant and the other is recessive.  
B. Alleles do not show any expression and both the characters appear as such in  $F_2$  generation.  
C. Factors occur in pairs in normal diploid plants.  
D. The discrete unit controlling a particular character is called factor.  
E. The expression of only one of the parental characters is found in a monohybrid cross.

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

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

Ans. (2)

Sol. Alleles do not show any **blending** and both the characters appear as such in  $F_2$  generation.

124. Match List I with List II

**List I**

- A. Nucleolus  
B. Centriole  
C. Leucoplasts  
D. Golgi apparatus

**List II**

- I. Site of formation of glycolipid  
II. Organization like the cartwheel  
III. Site for active ribosomal RNA synthesis  
IV. For storing nutrients

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

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

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**Ans. (1)**

125. Identify the set of correct statements :

- A. The flowers of vallisneria are colourful and produce nectar.
- B. The flowers of waterlily are not pollinated by water.
- C. In most of water-pollinated species, The pollen grains are protected from wetting.
- D. Pollen grains of some hydrophytes are long and ribbon like.
- E. In some hydrophytes, the pollen grains are carried passively inside water.

Choose the correct answer from the options given below :

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

**Ans. (4)****Sol.** The flowers of vallisneria are **colourless** and **not** produce nectar.

126. Match List I with List II

<b>List-I</b>	<b>List-II</b>
A. Rhizopus	I. Mushroom
B. Ustilago	II. Smut fungus
C. Puccinia	III. Bread mould
D. Agaricus	IV. Rust fungus

Choose the correct answer from the options given below :

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

**Ans. (1)****MATRIX NEET DIVISION****Office : Piprali Road, Sikar (Raj.) | Ph. 01572-243911****Website : [www.matrixedu.in](http://www.matrixedu.in) ; Email : [smd@matrixacademy.co.in](mailto:smd@matrixacademy.co.in)**



127. Hind II always cuts DNA molecules at a particular point called recognition sequence and it consists of :

- (1) 8 bp                      (2) 6 bp                      (3) 4 bp                      (4) 10 bp

**Ans. (2)**

128. Which of the following is an example of actinomorphic flower ?

- (1) Datura                      (2) Cassia                      (3) Pisum                      (4) Sesbania

**Ans. (1)**

**Sol.** Example of actinomorphic flower  $\Rightarrow$  mustard, **datura**, chilli.

129. The type of conservation in which the threatened species are taken out from their natural habitat and placed in special setting where they can be protected and given special care is called;

- (1) *in-situ* conservation                      (2) Biodiversity conservation  
(3) Semi-conservative method                      (4) Sustainable development

**Ans. (2)**

130. Given below are two statements :

**Statement-I** : Chromosomes become gradually visible under light microscope during leptotene stage.

**Statement II** : The beginning of diplotene stage is recognized by dissolution of synaptonemal complex.

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

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

**Ans. (1)**

**Sol.** Both Statements are true.



131. Formation of interfascicular cambium from fully developed parenchyma cells is an example for :

- (1) Differentiation (2) Redifferentiation  
(3) Dedifferentiation (4) Maturation

**Ans. (3)**

**Sol.** Interfascicular cambium is secondary meristem and forms secondary permanent tissue, so it is called **Dedifferentiation**.

132. The capacity to generate a whole plant from any cell of the plant is called :

- (1) Totipotency  
(2) Micropropagation  
(3) Differentiation  
(4) Somatic hybridization

**Ans. (1)**

**Sol.** The capacity to generate a whole plant from any cell of the plant is called **Totipotency**.

133. Match List I with List II

**List-I**

- A. Two or more alternative forms of a gene  
B. Cross of  $F_1$  progeny with homozygous recessive parent  
C. Cross of  $F_1$  progeny with any of the parents  
D. Number of chromosome sets in plant

**List-II**

- I. Back cross  
II. Ploidy  
III. Allele  
IV. Test cross

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

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

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**Ans. (3)**

134. The cofactor of the enzyme carboxypeptidase is :

- (1) Zinc                      (2) Niacin                      (3) Flavin                      (4) Haem

**Ans. (1)**

135. These are regarded as major causes of biodiversity loss:

- A. Over exploitation  
B. Co-extinction  
C. Mutation  
D. Habitat loss and fragmentation  
E. Migration

Choose the **correct** option:

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

**Ans. (4)****Sol.** The major causes of biodiversity loss.

- A. Over exploitation  
B. Co-extinction  
D. Habitat loss and fragmentation

136. Match List-I with List-II

**List-I****(Types of stamens)**

- A. Monadelphous  
B. Diadelphous  
C. Polyadelphous  
D. Epiphyllous

**List-II****(Example)**

- I. Citrus  
II. Pea  
III. Lily  
IV. Chinarose

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

**Ans. (1)**

137. Match List I with List II

List-I	List-II
A. GLUT-4	I. Hormone
B. Insulin	II. Enzyme
C. Trypsin	III. Intercellular ground substance
D. Collagen	IV. Enables glucose transport into cells

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

- (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

**Ans. (1)**

138. Identify the step in tricarboxylic acid cycle, which does not involve oxidation of substrate :

- (1) Malic acid → Oxaloacetic acid
- (2) Succinic acid → Malic acid
- (3) Succinyl-CoA → Succinic acid
- (4) Isocitrate →  $\alpha$ -Ketoglutaric acid

**Ans. (3)**

**Sol.** In TCA cycle oxidation occurs, where  $\text{NADH}_2$  and  $\text{FADH}_2$  are formed.



139. Match List I with List II

**List-I**

- A. Citric acid cycle
- B. Glycolysis
- C. Electron transport system
- D. Proton gradient

**List-II**

- I. Cytoplasm
- II. Mitochondrial matrix
- III. Intermembrane space of mitochondria
- IV. Inner mitochondrial membrane

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

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

**Ans. (2)**

140. Match List I with List II

**List-I**

- A. Frederick Griffith
- B. Francois Jacob & Jacque Monod
- C. Har Gobind Khorana
- D. Meselson & Stahl

**List-II**

- I. Genetic code
- II. Semi-conservative mode of DNA replication
- III. Transformation
- IV. Lac operon

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

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

**Ans. (2)**

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141. Given below are two statements:

**Statement-I** : In  $C_3$  plants, some  $O_2$  binds to RuBisCO, hence  $CO_2$  fixation is decreased.

**Statement-II** : In  $C_4$  plants, mesophyll cells show very little photorespiration while bundle sheath cells do not show photorespiration.

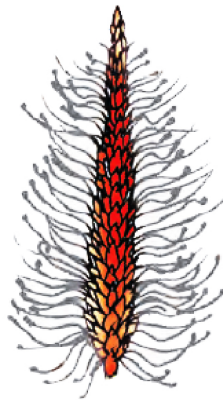
In the light of the above statements, choose the **correct** answer from the options given below:

- (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

**Ans. (3)**

**Sol.** Statement II is incorrect because RuBisCO is absent in mesophyll cell.

142. Identify the **correct** description about the given figure :



- (1) Wind pollinated plant inflorescence showing flowers with well exposed stamens.
- (2) Water pollinated flowers showing stamens with mucilaginous covering.
- (3) Cleistogamous flowers showing autogamy.
- (4) Compact inflorescence showing complete autogamy.

**Ans. (1)**

**Sol.** Only I statement is correct.





143. Match List I with List II

**List-I**

- A. Rose
- B. Pea
- C. Cotton
- D. Mango

**List-II**

- I. Twisted aestivation
- II. Perigynous flower
- III. Drupe
- IV. Marginal placentation

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

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

**Ans. (1)**

144. Read the following statements and choose the set of correct statements:

In the members of Phaeophyceae,

- A. Asexual reproduction occurs usually by biflagellate zoospores.
- B. Sexual reproduction is by oogamous method only.
- C. Stored food is in the form of carbohydrates which is either mannitol or laminarin.
- D. The major pigments found are chlorophyll a, and carotenoids and xanthophyll.
- E. Vegetative cells have a cellulosic wall, usually covered on the outside by gelatinous coating of algin.

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

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

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**Ans. (3)**

**Sol.** Statement B is incorrect because Sexual reproduction may be Isogamous, Anisogamous or oogamous.

145. In an ecosystem in the Net primary Productivity (NPP) of first trophic level is  $100x \text{ (kcal m}^{-2}\text{)yr}^{-1}$ , what would be the GPP (Gross Primary Productivity) of the third trophic level of the same ecosystem ?

(1)  $\frac{x}{10} \text{ (kcal m}^{-2}\text{)yr}^{-1}$

(2)  $x \text{ (kcal m}^{-2}\text{)yr}^{-1}$

(3)  $10x \text{ (kcal m}^{-2}\text{)yr}^{-1}$

(4)  $\frac{100x}{3x} \text{ (kcal m}^{-2}\text{)yr}^{-1}$

**Ans. (3)**

**Sol.**  $NPP = 100x$

$R = 10\%$  loss                      Hence  $GPP = 1000x$  of first tropic level.

I	II	III
1000	100	10x

146. Which of the following statement is correct regarding the process of replication in *E. coli*?

(1) The DNA dependent DNA polymerase catalyses polymerization in one direction that is  $3' \rightarrow 5'$ .

(2) The DNA dependent RNA polymerase catalyses polymerization in one direction, that is  $5' \rightarrow 3'$ .

(3) The DNA dependent DNA polymerase catalyses polymerization in  $5' \rightarrow 3'$  as well as  $3' \rightarrow 5'$  direction.

(4) The DNA dependent DNA polymerase catalyses polymerization in  $5' \rightarrow 3'$  direction.

**Ans. (4)**

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**Sol.** The DNA dependent DNA polymerase catalyses polymerization in 5' → 3' direction.

147. Which of the following are fused in somatic hybridization involving two varieties of plants?

- (1) Callus
- (2) Somatic embryos
- (3) Protoplasts
- (4) Pollens

**Ans. (3)**

**Sol.** Somatic hybridization is defined as fusion of protoplast of two varieties of plants.

148. Spraying sugarcane crop with which of the following plant growth regulators, increases the length of stem, thus, increasing the yield?

- (1) Auxin
- (2) Gibberellin
- (3) Cytokinin
- (4) Abscisic acid

**Ans. (2)**

**Sol.** Spraying sugarcane crop with "gibberellins" plant growth regulator, increases the length of stem, thus, increasing the yield.

149. Match List I with List II

**List-I**

- A. Robert May
- B. Alexander von Humboldt
- C. Paul Ehrlich
- D. David Tilman

**List-II**

- I. Species-Area relationship
- II. Long term ecosystem experiment using outdoor plots
- III. Global species diversity at about 7 million
- IV. Rivet popper hypothesis

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

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

**Ans. (2)**

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- Sol.** A. Robert May  
B. Alexander von Humboldt  
C. Paul Ehrlich  
D. David Tilman
- I. Global species diversity at about 7 million  
II. Species-Area relationship  
III. Rivet popper hypothesis  
IV. Long term ecosystem experiment using out door plots

150. The DNA present in chloroplast is :

- (1) Linear, double stranded  
(2) Circular, double stranded  
(3) Linear, single stranded  
(4) Circular, single stranded

**Ans. (2)**

**Sol.** The DNA present in chloroplast is Circular, double stranded.

**SUBJECT : ZOOLOGY****SECTION - A**

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

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

**Ans. (3)**

152. Match List I with List II :

**List I**

- A. Cocaine
- B. Heroin
- C. Morphine
- D. Marijuana

**List II**

- I. Effective sedative in surgery
- II. Cannabis sativa
- III. Erythroxyllum
- IV. Papaver somniferum

Choose the correct answer from the options given below :

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

**Ans. (4)**

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153. Match List I with List II :

**List I**

- A. Fibrous joints
- B. Cartilaginous joints
- C. Hinge joints
- D. Ball and socket joints

**List II**

- I. Adjacent vertebrae, limited movement
- II. Humerus and pectoral girdle, rotational movement
- III. Skull, don't allow any movement
- IV. Knee, help in locomotion

Choose the correct answer from the options given below :

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

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

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

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

**Ans. (4)**

154. Which of the following are Autoimmune disorders ?

- A. Myasthenia gravis
- B. Rheumatoid arthritis
- C. Gout
- D. Muscular dystrophy
- E. Systemic Lupus Erythematosus (SLE)

Choose the most appropriate answer from the options given below :

(1) A, B & D only

(2) A, B & E only

(3) B, C & E only

(4) C, D & E only

**Ans. (2)**

**Sol.** Systemic Lupus Erythematosus (SLE). It is an inflammatory disease caused when immune system affects its own tissues. It can affect joints, kidneys, skin, blood cells, brain, heart and lungs.

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

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

**Ans. (1)**

**Sol.** Fallopian tube consists of three parts : Isthmus, infundibulum and ampulla.

Uterine fundus is a part of uterus.

156. The flippers of the Penguins and Dolphins are the example of the :

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

**Ans. (3)**

157. Match List I with List II :

**List I**

- A.  $\alpha$ -1 antitrypsin  
B. Cry IAb  
C. Cry IA<sub>c</sub>  
D. Enzyme replacement therapy

**List II**

- I. Cotton bollworm  
II. ADA deficiency  
III. Emphysema  
IV. Corn borer

Choose the correct answer from the options given below :

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

**Ans. (3)**

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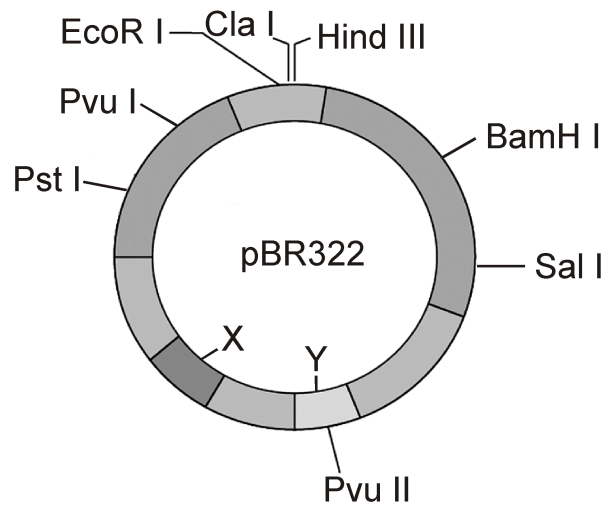
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158. The following diagram showing restriction sites in E.coli cloning vector pBR322. Find the role of 'X' and 'Y' genes :



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

**Ans. (2)**

**Sol.** Here, 'X' represents ori and 'Y' represents rop.

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

**Assertion A :** Breast-feeding during initial period of infant growth is recommended by doctors for bringing a healthy baby.

**Reason R :** Colostrum contains several antibodies absolutely essential to develop resistance for the new born baby.





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

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

**Ans. (1)**

160. The "Ti plasmid" of *Agrobacterium tumefaciens* stands for :

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

**Ans. (3)**

161. Match List I with List II :

**List I**

- A. Pleurobrachia
- B. Radula
- C. Stomochord
- D. Air bladder

**List II**

- I. Mollusca
- II. Ctenophora
- III. Osteichthyes
- IV. Hemichordata

Choose the correct answer from the options given below :

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

**Ans. (2)**

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162. 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) D-A-C-B
- (2) B-A-D-C
- (3) C-B-D-A
- (4) A-D-C-B

**Ans. (4)**

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

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

**Ans. (4)**

**Sol.** Glucagon is a peptidal hormone.

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

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

**Ans. (2)**

165. Which one of the following factors will not affect the Hardy-Weinberg equilibrium ?

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

**Ans. (4)**

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**Sol.** Hardy-Weinberg equilibrium is affected by : Genetic recombination, Genetic drift, Gene migration, Gene flow, Mutation and Natural selection.

166. Match List I with List II :

**List I**

- A. Pons
- B. Hypothalamus
- C. Medulla
- D. Cerebellum

**List II**

- I. Provides additional space for Neurons, regulates posture and balance.
- II. Controls respiration and gastric secretions.
- III. Connects different regions of the brain.
- IV. Neuro secretory cells

Choose the correct answer from the options given below :

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

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

**Ans. (2)**

167. Match List I with List II :

**List I**

- A. Down's syndrome
- B.  $\alpha$ -Thalassemia
- C.  $\beta$ -Thalassemia
- D. Klinefelter's syndrome

**List II**

- I. 11<sup>th</sup> chromosome
- II. 'X' chromosome
- III. 21<sup>st</sup> chromosome
- IV. 16<sup>th</sup> chromosome

Choose the correct answer from the options given below :

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

**Ans. (3)**

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- Sol.** A. Down syndrome - Due to trisomy on 21<sup>st</sup> chromosome  
B.  $\alpha$ -thalassamia - Due to Mutation in HBA1 and HBA2 genes located on chromosome no. 16  
C.  $\beta$ -thalassamia - Due to Mutation in HBB gene located on chromosome no. 11  
D. Klinfelter syndrome - Due to presence of additional copy of 'X' chromosome resulting into a karyotype of 47, XXY

168. Which one is correct product of DNA dependent RNA polymerase to the given template ?  
3'TACATGGCAAATATCCATTCA5'  
(1) 5'AUGUACCGUUUUAUAGGUAAGU3'  
(2) 5'AUGUAAAGUUUUAUAGGUAAGU3'  
(3) 5'AUGUACCGUUUUAUAGGGAAGU3'  
(4) 5'ATGTACCGTTTATAGGTAAGT3'

**Ans. (1)**

**Sol.** Sequence of mRNA will be :

3'TACATGGCAAATATCCATTCA5'  
5'AUGUACCGUUUUAUAGGUAAGU3'

169. 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 above statements, choose the most appropriate answer from the options given below :

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

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**Ans. (4)**

**Sol.** FSH acts upon ovarian follicles in female and Sertoli cells in male.

170. Which of the following is not a natural/traditional contraceptive method ?

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

**Ans. (4)**

**Sol.** Coitus interruptus, Periodic abstinence, Lactational amenorrhea are natural methods of contraception while Vaults are a type of physical barriers.

171. Match List I with List II :

**List I**

- A. Non-medicated IUD
- B. Copper releasing IUD
- C. Hormone releasing IUD
- D. Implants

**List II**

- I. Multiload 375
- II. Progestogens
- III. Lippes loop
- IV. LNG-20

Choose the correct answer from the options given below :

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

**Ans. (4)**

172. 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) B only | (2) A only |
| (3) C only | (4) D only |

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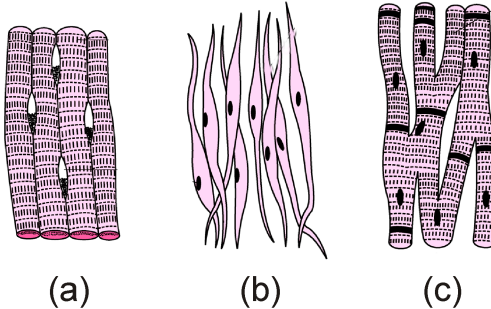
**Ans. (2)**

**Sol.** B. Poriferans are acoelomates.

C. Aschelminthes are pseudocoelomates

D. Platyhelminthes are acoelomates

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



**Name of muscle/location**

(1) (a) Smooth - Toes

(b) Skeletal - Legs

(c) Cardiac - Heart

(2) (a) Skeletal - Triceps

(b) Smooth - Stomach

(c) Cardiac - Heart

(3) (a) Skeletal - Biceps

(b) Involuntary- Intestine

(c) Smooth - Heart

(4) (a) Involuntary - Nose tip

(b) Skeletal - Bone

(c) Cardiac - Heart

**Ans. (2)**



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

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

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

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

**Ans. (1)**

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

**Ans. (3)**

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

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

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

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

**Ans. (4)**

**Sol.** Axoneme - The core of cilia & flagella is known as axoneme

Cartwheel pattern- centriole

Crista - The inner membrane of mitochondria is called as crista.

Satellite - Secondary constriction found in some chromosomes known as satellite.

177. Match List I with List II :

List I

List II

(Sub Phases of Prophase I)

(Specific characters)

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

Choose the correct answer from the options given below :

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

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

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

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

**Ans. (3)**

**Sol.** Leptotene - Chromosomes look like thin threads

Zygotene - Synaptonemal complex formation

Pachytene - Appearance of recombination nodules

Diakinesis - Completion of terminalisation of chiasmata

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

- (1) High  $pO_2$  and High  $pCO_2$
- (2) High  $pO_2$  and Lesser  $H^+$  concentration
- (3) Low  $pCO_2$  and High  $H^+$  concentration
- (4) Low  $pCO_2$  and High temperature

**Ans. (2)**

179. Match List I with List II :

List I

A. *Pterophyllum*

B. *Myxine*

C. *Pristis*

D. *Exocoetus*

List II

I. Hag fish

II. Saw fish

III. Angel fish

IV. Flying fish

Choose the correct answer from the options given below :

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

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

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

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

**Ans. (2)**

180. Match List I with List II

List I

A. Typhoid

B. Leishmaniasis

C. Ringworm

D. Filariasis

List II

I. Fungus

II. Nematode

III. Protozoa

IV. Bacteria

Choose the correct answer from the options given below :

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

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

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

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

**Ans. (2)**

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181. Which of the following statements is incorrect?

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

**Ans. (3)**

**Sol.** Bio-reactors are used to produce large scale bacterial cultures.

182. 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 options given below:

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

**Ans. (2)**

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

**Statement II :** P.C.T. is lined by simple cuboidal brush border epithelium

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

**Ans. (3)**

**Sol.** The hymen can be torn due to following reasons :

first coitus, suddenfall, insertion of vaginal tampon, horse riding bicycling etc.

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

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

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

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

**Ans. (1)**

185. 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) C-E-D-A-B

(2) E-B-D-A-C

(3) B-D-E-A-C

(4) E-C-A-D-B

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**Ans. (4)**

**Sol.** The correct sequence of cell cycle is -

Gap 1 phase → Synthesis phase → Gap 2 phase → Karyokinesis → Cytokinesis

### SECTION - B

186. Given below are two statements

Statement I: Mitochondria and chloroplasts are both double membrane bound organelles,

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

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

**Ans. (3)**

**Sol.** Statement I is correct and Statement II is incorrect

187. Match List I with List II :

List I

List II

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

**Ans. (4)**

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

**Ans. (4)**

**Sol.** Gause's competitive exclusion principle states that two closely related species competing for same resources cannot co-exist indefinitely because during competition, the inferior will be eliminated. This may be true if resources are limiting.

189. 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-III, D-IV

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

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

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

**Ans. (3)**



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

**List I****List II**

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

**Ans. (1)**

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

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

**Ans. (3)**

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192. Match List I with List II :

List I

A. RNA polymerase

B. Termination of transcription

C. Splicing of Exons

D. TATA box

List II

I. snRNPs

II. Promotor

III. Rho factor

IV. SnRNAs, tRNA

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

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

**Ans. (4)**

**Sol.** RNA polymerase III - Transcription of SnRNAs and tRNA is done by RNA polymerase III

Rho factor is associated with the termination of transcription process.

TATA Box found in promoter region.

SnRNPs are proteins involve in the splicing of exons.

193. 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) Both Statement I and Statement II are correct.

(2) Both Statement I and Statement II are incorrect.

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

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

**Ans. (3)**

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

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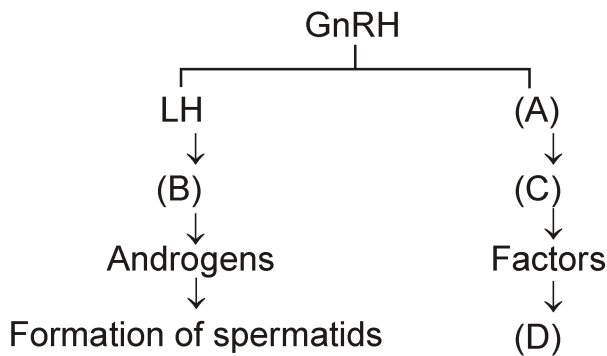
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194. Identify the correct option (A), (B), (C), (D) with respect to spermatogenesis.



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

**Ans. (1)**

195. 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<sup>B</sup>i / I<sup>A</sup>i / ii
- B. I<sup>B</sup>I<sup>B</sup> / I<sup>A</sup>I<sup>A</sup> / ii
- C. I<sup>A</sup>I<sup>B</sup> / ii<sup>A</sup> / I<sup>B</sup>i
- D. I<sup>A</sup>i / I<sup>B</sup>i / I<sup>A</sup>i
- D. ii<sup>B</sup> / ii<sup>A</sup> / I<sup>A</sup>I<sup>B</sup>

Choose the most appropriate answer from the options given below :

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

**Ans. (1)**

**Sol.** Father blood group B<sup>+</sup> and mother blood group A<sup>+</sup> having child with O<sup>+</sup> blood group is only possible when father genotype is i<sup>B</sup>i and mother genotype is i<sup>A</sup>i.

196. 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.

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

**Ans. (1)**

197. 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, A, D, C, B      (2) A, E, B, D, C      (3) B, A, C, D, E      (4) E, D, C, B, A

**Ans. (1)**

198. Match List I with 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-I, B-III, C-IV, D-II      (2) A-III, B-II, C-IV, D-I  
(3) A-II, B-III, C-I, D-IV      (4) A-IV, B-II, C-I, D-III

**Ans. (2)**



199. Match List I with List II :

**List I**

- A. Exophthalmic goitre
- B. Acromegaly
- C. Cushing's syndrome
- D. Cretinism

**List II**

- I. Excess secretion of cortisol, moon face & hyperglycemia
- II. Hypo-secretion of thyroid hormone and stunted growth.
- III. Hyper secretion of thyroid hormone & protruding eye balls.
- IV. Excessive secretion of growth hormone.

Choose the correct answer from the options given below:

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

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

**Ans. (4)**

200. The following are the statements about nonchordates:

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

**Ans. (3)**

- Sol.** A. Pharynx is perforated by gill slits in chordates  
C. Central nervous system is ventral in non chordates