

132. Which of the following would help in prevention of diuresis ?

- (1) More water reabsorption due to undersecretion of ADH
- (2) Reabsorption of Na^+ and water from renal tubules due to aldosterone
- (3) Atrial natriuretic factor causes vasoconstriction
- (4) Decrease in secretion of renin by JG cells

133. Match the following with respect to meiosis :

- | | |
|----------------|---------------------|
| (a) Zygotene | (i) Terminalization |
| (b) Pachytene | (ii) Chiasmata |
| (c) Diplotene | (iii) Crossing over |
| (d) Diakinesis | (iv) Synapsis |

Select the **correct** option from the following :

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

134. Which of the following is **not** an inhibitory substance governing seed dormancy ?

- (1) Gibberellic acid
- (2) Abscissic acid
- (3) Phenolic acid
- (4) Para-ascorbic acid

135. Match the following columns and select the **correct** option.

- | Column - I | | Column - II | |
|------------------------------------|-------|-------------------------------|--|
| (a) Bt cotton | (i) | Gene therapy | |
| (b) Adenosine deaminase deficiency | (ii) | Cellular defence | |
| (c) RNAi | (iii) | Detection of HIV infection | |
| (d) PCR | (iv) | <i>Bacillus thuringiensis</i> | |

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

136. Match the following :

- | | |
|-------------------------------------|---------------|
| (a) Inhibitor of catalytic activity | (i) Ricin |
| (b) Possess peptide bonds | (ii) Malonate |
| (c) Cell wall material in fungi | (iii) Chitin |
| (d) Secondary metabolite | (iv) Collagen |

Choose the **correct** option from the following :

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

137. The sequence that controls the copy number of the linked DNA in the vector, is termed :

- (1) Selectable marker
- (2) Ori site
- (3) Palindromic sequence
- (4) Recognition site

138. Snow-blindness in Antarctic region is due to :

- (1) Freezing of fluids in the eye by low temperature
- (2) Inflammation of cornea due to high dose of UV-B radiation
- (3) High reflection of light from snow
- (4) Damage to retina caused by infra-red rays

139. According to Robert May, the global species diversity is about :

- (1) 1.5 million
- (2) 20 million
- (3) 50 million
- (4) 7 million

140. By which method was a new breed 'Hisardale' of sheep formed by using Bikaneri ewes and Marino rams ?

- (1) Out crossing
- (2) Mutational breeding
- (3) Cross breeding
- (4) Inbreeding

141. Which of the following regions of the globe exhibits highest species diversity ?

- (1) Western Ghats of India
- (2) Madagascar
- (3) Himalayas
- (4) Amazon forests

142. Match the following columns and select the **correct** option.

Column - I		Column - II	
(a)	6 - 15 pairs of gill slits	(i)	<i>Trygon</i>
(b)	Heterocercal caudal fin	(ii)	Cyclostomes
(c)	Air Bladder	(iii)	Chondrichthyes
(d)	Poison sting	(iv)	Osteichthyes
(a)	(b)	(c)	(d)
(1)	(ii)	(iii)	(iv)
(2)	(iii)	(iv)	(i)
(3)	(iv)	(ii)	(iii)
(4)	(i)	(iv)	(iii)

143. Which of the following statements is **not** correct ?

- (1) In man insulin is synthesised as a proinsulin.
- (2) The proinsulin has an extra peptide called C-peptide.
- (3) The functional insulin has A and B chains linked together by hydrogen bonds.
- (4) Genetically engineered insulin is produced in *E-Coli*.

144. Match the organism with its use in biotechnology.

(a)	<i>Bacillus thuringiensis</i>	(i)	Cloning vector
(b)	<i>Thermus aquaticus</i>	(ii)	Construction of first rDNA molecule
(c)	<i>Agrobacterium tumefaciens</i>	(iii)	DNA polymerase
(d)	<i>Salmonella typhimurium</i>	(iv)	Cry proteins

Select the **correct** option from the following :

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

145. Which of the following pairs is of unicellular algae ?

- (1) *Laminaria* and *Sargassum*
- (2) *Gelidium* and *Gracilaria*
- (3) *Anabaena* and *Volvox*
- (4) *Chlorella* and *Spirulina*

146. Meiotic division of the secondary oocyte is completed :

- (1) Prior to ovulation
- (2) At the time of copulation
- (3) After zygote formation
- (4) At the time of fusion of a sperm with an ovum

147. Secondary metabolites such as nicotine, strychnine and caffeine are produced by plants for their :

- (1) Nutritive value
- (2) Growth response
- (3) Defence action
- (4) Effect on reproduction

148. Which of the following statements are **true** for the phylum-Chordata ?

- (a) In Urochordata notochord extends from head to tail and it is present throughout their life.
- (b) In Vertebrata notochord is present during the embryonic period only.
- (c) Central nervous system is dorsal and hollow.
- (d) Chordata is divided into 3 subphyla : Hemichordata, Tunicata and Cephalochordata.

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

149. Bt cotton variety that was developed by the introduction of toxin gene of *Bacillus thuringiensis* (Bt) is resistant to :

- (1) Insect pests
- (2) Fungal diseases
- (3) Plant nematodes
- (4) Insect predators

150. The product(s) of reaction catalyzed by nitrogenase in root nodules of leguminous plants is/are :

- (1) Ammonia alone
- (2) Nitrate alone
- (3) Ammonia and oxygen
- (4) Ammonia and hydrogen

151. Match the following columns and select the **correct** option.

Column - I		Column - II	
(a)	Pituitary gland	(i)	Grave's disease
(b)	Thyroid gland	(ii)	Diabetes mellitus
(c)	Adrenal gland	(iii)	Diabetes insipidus
(d)	Pancreas	(iv)	Addison's disease
(a)	(b)	(c)	(d)
(1)	(iv)	(iii)	(i)
(2)	(iii)	(ii)	(i)
(3)	(iii)	(i)	(iv)
(4)	(ii)	(i)	(iv)

- 152.** Which one of the following is the most abundant protein in the animals ?
 (1) Haemoglobin
 (2) Collagen
 (3) Lectin
 (4) Insulin
- 153.** Identify the **correct** statement with regard to G₁ phase (Gap 1) of interphase.
 (1) DNA synthesis or replication takes place.
 (2) Reorganisation of all cell components takes place.
 (3) Cell is metabolically active, grows but does not replicate its DNA.
 (4) Nuclear Division takes place.
- 154.** Match the trophic levels with their **correct** species examples in grassland ecosystem.
- | | |
|--------------------------|--------------|
| (a) Fourth trophic level | (i) Crow |
| (b) Second trophic level | (ii) Vulture |
| (c) First trophic level | (iii) Rabbit |
| (d) Third trophic level | (iv) Grass |
- Select the **correct** option :
- | | (a) | (b) | (c) | (d) |
|-----|-------|-------|-------|------|
| (1) | (ii) | (iii) | (iv) | (i) |
| (2) | (iii) | (ii) | (i) | (iv) |
| (3) | (iv) | (iii) | (ii) | (i) |
| (4) | (i) | (ii) | (iii) | (iv) |
- 155.** The ovary is half inferior in :
 (1) Brinjal
 (2) Mustard
 (3) Sunflower
 (4) Plum
- 156.** The body of the ovule is fused within the funicle at :
 (1) Hilum
 (2) Micropyle
 (3) Nucellus
 (4) Chalaza
- 157.** The specific palindromic sequence which is recognized by EcoRI is :
 (1) 5' - GAATTC - 3'
 3' - CTTAAG - 5'
 (2) 5' - GGAACC - 3'
 3' - CCTTGG - 5'
 (3) 5' - CTTAAG - 3'
 3' - GAATTC - 5'
 (4) 5' - GGATCC - 3'
 3' - CCTAGG - 5'
- 158.** Which of the following is **correct** about viroids ?
 (1) They have RNA with protein coat.
 (2) They have free RNA without protein coat.
 (3) They have DNA with protein coat.
 (4) They have free DNA without protein coat.
- 159.** In water hyacinth and water lily, pollination takes place by :
 (1) insects or wind
 (2) water currents only
 (3) wind and water
 (4) insects and water
- 160.** The transverse section of a plant shows following anatomical features :
 (a) Large number of scattered vascular bundles surrounded by bundle sheath.
 (b) Large conspicuous parenchymatous ground tissue.
 (c) Vascular bundles conjoint and closed.
 (d) Phloem parenchyma absent.
- Identify the category of plant and its part :
 (1) Monocotyledonous stem
 (2) Monocotyledonous root
 (3) Dicotyledonous stem
 (4) Dicotyledonous root
- 161.** Which of the following statements is **correct** ?
 (1) Adenine pairs with thymine through two H-bonds.
 (2) Adenine pairs with thymine through one H-bond.
 (3) Adenine pairs with thymine through three H-bonds.
 (4) Adenine does not pair with thymine.
- 162.** Select the **correct** statement.
 (1) Glucocorticoids stimulate gluconeogenesis.
 (2) Glucagon is associated with hypoglycemia.
 (3) Insulin acts on pancreatic cells and adipocytes.
 (4) Insulin is associated with hyperglycemia.

163. Match the following columns and select the correct option.

Column - I				Column - II	
(a)	Gregarious, polyphagous pest			(i)	<i>Asterias</i>
(b)	Adult with radial symmetry and larva with bilateral symmetry			(ii)	Scorpion
(c)	Book lungs			(iii)	<i>Ctenoplanea</i>
(d)	Bioluminescence			(iv)	<i>Locusta</i>
	(a)	(b)	(c)	(d)	
(1)	(i)	(iii)	(ii)	(iv)	
(2)	(iv)	(i)	(ii)	(iii)	
(3)	(iii)	(ii)	(i)	(iv)	
(4)	(ii)	(i)	(iii)	(iv)	

164. Match the following columns and select the correct option.

Column - I			Column - II	
(a)	Eosinophils		(i)	Immune response
(b)	Basophils		(ii)	Phagocytosis
(c)	Neutrophils		(iii)	Release histaminase, destructive enzymes
(d)	Lymphocytes		(iv)	Release granules containing histamine
	(a)	(b)	(c)	(d)
(1)	(iii)	(iv)	(ii)	(i)
(2)	(iv)	(i)	(ii)	(iii)
(3)	(i)	(ii)	(iv)	(iii)
(4)	(ii)	(i)	(iii)	(iv)

165. If the head of cockroach is removed, it may live for few days because :

- (1) the supra-oesophageal ganglia of the cockroach are situated in ventral part of abdomen.
- (2) the cockroach does not have nervous system.
- (3) the head holds a small proportion of a nervous system while the rest is situated along the ventral part of its body.
- (4) the head holds a $\frac{1}{3}$ rd of a nervous system while the rest is situated along the dorsal part of its body.

166. Name the enzyme that facilitates opening of DNA helix during transcription.

- (1) DNA ligase
- (2) DNA helicase
- (3) DNA polymerase
- (4) RNA polymerase

167. Flippers of Penguins and Dolphins are examples of :

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

168. Which of the following hormone levels will cause release of ovum (ovulation) from the graffian follicle ?

- (1) High concentration of Estrogen
- (2) High concentration of Progesterone
- (3) Low concentration of LH
- (4) Low concentration of FSH

169. If the distance between two consecutive base pairs is 0.34 nm and the total number of base pairs of a DNA double helix in a typical mammalian cell is 6.6×10^9 bp, then the length of the DNA is approximately :

- (1) 2.0 meters
- (2) 2.5 meters
- (3) 2.2 meters
- (4) 2.7 meters

170. Match the following columns and select the correct option.

Column - I		Column - II	
(a)	Placenta	(i)	Androgens
(b)	Zona pellucida	(ii)	Human Chorionic Gonadotropin (hCG)
(c)	Bulbo-urethral glands	(iii)	Layer of the ovum
(d)	Leydig cells	(iv)	Lubrication of the Penis

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

171. Match the following columns and select the correct option.

Column - I		Column - II	
(a)	<i>Clostridium butylicum</i>	(i)	Cyclosporin-A
(b)	<i>Trichoderma polysporum</i>	(ii)	Butyric Acid
(c)	<i>Monascus purpureus</i>	(iii)	Citric Acid
(d)	<i>Aspergillus niger</i>	(iv)	Blood cholesterol lowering agent

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

172. Goblet cells of alimentary canal are modified from :
- (1) Squamous epithelial cells
 - (2) Columnar epithelial cells
 - (3) Chondrocytes
 - (4) Compound epithelial cells
173. Experimental verification of the chromosomal theory of inheritance was done by :
- (1) Mendel
 - (2) Sutton
 - (3) Boveri
 - (4) Morgan
174. The process responsible for facilitating loss of water in liquid form from the tip of grass blades at night and in early morning is :
- (1) Transpiration
 - (2) Root pressure
 - (3) Imbibition
 - (4) Plasmolysis
175. Identify the substances having glycosidic bond and peptide bond, respectively in their structure :
- (1) Chitin, cholesterol
 - (2) Glycerol, trypsin
 - (3) Cellulose, lecithin
 - (4) Inulin, insulin
176. Which of the following is **not** an attribute of a population ?
- (1) Sex ratio
 - (2) Natality
 - (3) Mortality
 - (4) Species interaction
177. The enzyme enterokinase helps in conversion of :
- (1) protein into polypeptides
 - (2) trypsinogen into trypsin
 - (3) caseinogen into casein
 - (4) pepsinogen into pepsin
178. Some dividing cells exit the cell cycle and enter vegetative inactive stage. This is called quiescent stage (G_0). This process occurs at the end of :
- (1) M phase
 - (2) G_1 phase
 - (3) S phase
 - (4) G_2 phase
179. In relation to Gross primary productivity and Net primary productivity of an ecosystem, which one of the following statements is **correct** ?
- (1) Gross primary productivity is always less than net primary productivity.
 - (2) Gross primary productivity is always more than net primary productivity.
 - (3) Gross primary productivity and Net primary productivity are one and same.
 - (4) There is no relationship between Gross primary productivity and Net primary productivity.
180. Which of the following is put into Anaerobic sludge digester for further sewage treatment ?
- (1) Primary sludge
 - (2) Floating debris
 - (3) Effluents of primary treatment
 - (4) Activated sludge

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