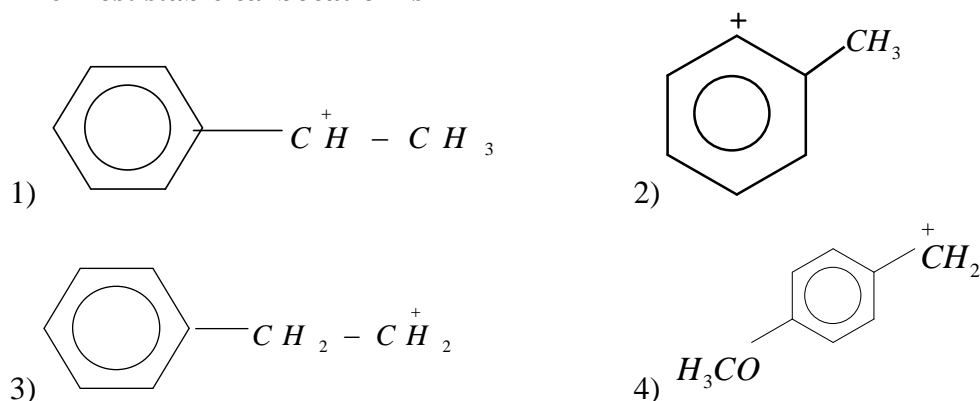
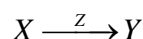
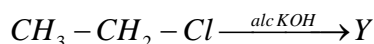


82. The most stable carbocation is



83. $CaC_2 + 2H_2O \rightarrow X$



In this reaction the reagent 'Z' is

- 1) $Con\ H_2SO_4$ 2) $LiAlH_4$ 3) $Pd+BaSO_4$ 4) $(Zn-Hg)+\ ConHCl$

84. $C_2H_6 \xrightarrow{(CH_3COO)_2Mn} X \xrightarrow{PCl_5} Y \xrightarrow[Anh.\ AlCl_3]{C_6H_6} Z$. Identify X, Y, Z.

- 1) $CO_2, COCl, C_6H_5COCl$ 2) $CH_3CHO, CH_3CH_2Cl, C_6H_5CH_2COCl$
 3) $CH_3COOH, CH_3COCl, C_6H_5COCH_3$ 4) $HCOOH, HCOCl, C_6H_5CHO$

85. In PO_4^{3-} ion the formal charge on each oxygen atom and P-O bond order respectively are

- 1) -0.75, 1.25 2) -3, 1.25 3) -0.75, 1 4) -0.75, 0.6

86. The statements regarding hydrides of VI-A group elements are

- i) The order of volatility $H_2O < H_2Te < H_2Se < H_2S$
 ii) The order of boiling point $H_2O > H_2Te > H_2Se > H_2S$
 iii) The order of bond angles $H_2O > H_2S > H_2Se > H_2Te$

The correct combination is

- 1) Only (i) is correct 2) (ii) and (iii) are correct
 3) (i) and (iii) are correct 4) All are correct

87. The halogen having greenish yellow gas reacts with hot and concentrated NaOH solution and give products. The oxidation state of that halogen changes from

- 1) 0 to -1 2) 0 to +5 3) -1 to +1 4) 0 to -1 and +5 states

88. The distribution of electrons in metal ion in $[Mn(H_2O)_6]^{2+}$ in splitted d- orbitals is

- 1) $t_{2g}^5 e_g^0$ 2) $t_{2g}^3 e_g^2$ 3) $t_{2g}^2 e_g^3$ 4) $t_{2g}^4 e_g^1$

89. Number of σ bonds present in meta borate ion and borazole are

- 1) 14, 15 2) 14, 12 3) 18, 12 4) 18, 15

90. Name of structure of silicate in which three oxygen atoms of $[SiO_4]^{4-}$ are shared is

- 1) Pyro silicate 2) Sheet silicate
 3) Linear chain silicate 4) Three dimensional silicate

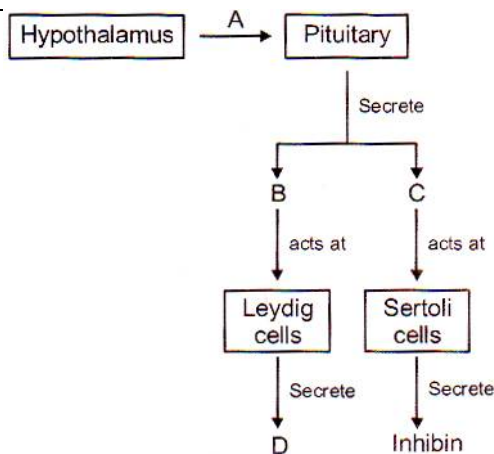
BIOLOGY

91. One of the following serve as quick referral systems in taxonomical studies.

- 1) Flora 2) Manuals 3) Herbaria 4) Monographs

92. Study the flow chart. Name the hormones labeled as A, B, C, D at each stage

Choose the correct option



- | A | B | C | D |
|------------------|------|----------|--------------|
| 1) Gn-RH | ICSH | Androgen | FSH |
| 2) Gn-RH | LH | FSH | Androgens |
| 3) Gonadotropins | LH | FSH | Testosterone |
| 4) Gn-RH | FSH | LH | Androgens |

93. **Conidia are**

- | | |
|------------------------------|-------------------------------|
| 1) Exogenous, asexual spores | 2) Endogenous, asexual spores |
| 3) Exogenous, sexual spores | 4) Endogenous, sexual spores |

94. **Identify the hormones that are secreted in large amount prior to ovulation.**

- | A. LH | B. FSH | C. Estrogen | D. Progesterone |
|-----------|-----------------|--------------------|------------------|
| 1) A only | 2) A and B only | 3) A, B and C only | 4) A, B, C and D |

95. **Identify the wrong sentence**

- | | |
|--|---|
| 1) Ovules are ategmic in gymnosperms | 2) N ₂ fixing coralloid roots are found in Cycas |
| 3) Mycorrhizal roots are seen in Pinus | 4) Endosperm is triploid in angiosperms |

96. **A sexually transmitted disease that can be treated with antibiotics is**

- | | | | |
|------------------|------------------|-------------|-------------------|
| 1) Genital warts | 2) Hepatitis - B | 3) Syphilis | 4) Trichomoniasis |
|------------------|------------------|-------------|-------------------|

97. **Match the following**

Set-I

- A. Stem tendril
- B. Leaf tendril
- C. Phylloclade
- D. Phyllode

Set-II

- 1. Watermelon
 - 2. *Opuntia*
 - 3. *Acacia melanoxylon*
 - 4. Pea
- 1) A-1, B-2, C-3, D-4 2) A-1, B-4, C-2, D-3 3) A-2, B-4, C-3, D-1 4) A-4, B-1, C-2, D-3

98. **Lactational amenorrhoea is a natural way of birth spacing. It is due to the high level of**

- | | |
|------------------------|-----------------|
| 1) FSH and LH hormones | 2) Estrogen |
| 3) Prolactin | 4) Progesterone |

99. **Ovary is half- superior in**

- | | | | |
|---------------|---------------|---------------|---------------|
| a) Mustard | b) Peach | c) Cucumber | d) Rose |
| e) Brinjal | f) Plum | | |
| 1) b, d and e | 2) a, b and f | 3) b, d and f | 4) b, c and f |

100. **Which of the following method is employed to assist the couple where there are problems with the sperms such as decrease in sperm count?**

- | A. ZIFT | B. GIFT | C. ICSI | D. AI |
|-----------------|-----------------|-----------|-----------|
| 1) A and B only | 2) C and D only | 3) C only | 4) D only |

101. **Ebroyophytic, tracheoptytic, archegoniate, cryptogams are**

- | | | | |
|-------------------|----------------|----------------|------------------|
| 1) Spermatophytes | 2) Gymnosperms | 3) Angiosperms | 4) Pteridophytes |
|-------------------|----------------|----------------|------------------|

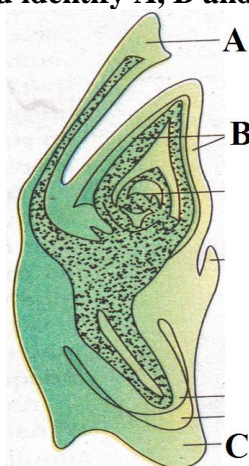
102. Which of the following are present in the muscles that exhibit high intensity contractions?
A. High myoglobin content
B. Low myoglobin content
C. Plenty of mitochondria
D. A few mitochondria
E. More amount of sarcoplasmic reticulum
F. Less amount of sarcoplasmic reticulum
 1) A, C and E 2) B, D and F 3) A, C and F 4) B, D and E
103. The placentation not found in unilocular ovary is
 1) Parietal 2) Basal 3) Marginal 4) Axile
104. Arrange the following events of 'cross bridge cycle' in an order
A. Power stroke
B. Another ATP binds to myosin head
C. P₁ released
D. Myosin head binds to active site and cross bridge formed
E. Energy released from hydrolysis of ATP in myosin head
F. ADP released
G. Myosin head releases active site
 1) D, E, A, F, B, C, G 2) E, D, F, A, C, B, G
 3) B, D, E, F, A, C, G 4) E, D, C, A, F, B, G
105. Living component in the xylem and dead component in the phloem respectively are
 1) Xylem fibres and phloem parenchyma 2) Xylem parenchyma and phloem fibres
 3) Tracheids and phloem fibres 4) Xylem parenchyma and sieve cells
106. Which of the following cranial nerves innervate the muscles that are originated from ectoderm?
 1) Optic 2) Pathetic 3) Occulomotor 4) Abducens
107. Vascular bundles are conjoint, open with endarch protoxylem are found in
 1) Dicot stem 2) Dicot root 3) Monocot stem 4) Monocot root
108. Which of the following end products of digestion are absorbed against concentration gradient into the cells of villi?
 1) Glucose, amino acids 2) Fructose, amino acids
 3) Amino acids 4) Water
109. The correct sequence of stages in cell cycle is
 1) G₁ G₂ S M 2) G₁ S G₂ M 3) G₁ G₂ M S 4) G₁ S M G₂
110. Match the following
List – A
A. Cricoid cartilage
B. Thyroid cartilage
C. Corniculate cartilages
D. Cuneiform cartilages
List – B
i) Smallest cartilages
ii) Paired cartilages
iii) ventral and lateral walls of larynx
iv) Largest cartilage
v) Lower and posterior part of wall of larynx
 1) A-i, B-iv, C-ii, D-v 2) A-v, B-iii, C-ii, D-i
 3) A-v, B-iv, C-i, D-iii 4) A-v, B-iii, C-i, D-ii
111. Arrange the following in decreasing order based on the number of layers present around them
I) Ribosome
II) Vacuole
III) Mitochondrion
IV) Endospore of bacterium
 1) I II III IV 2) II I III IV 3) IV III II I 4) IV III I II

125. If leaf cell of onion consists of 16 chromosomes, how many chromosomes are present in the endosperm cell of onion?
 1) 8 2) 16 3) 24 4) 48
126. What is the name of the region of the brain that is responsible for the functions like breathing, heart beat and blood pressure?
 1) Amygdala 2) Brain stem 3) Cerebrum 4) Both 1 and 2
127. Identify the correct sentence
 1) Xenogamy occurs in dioecious plants only
 2) In the plant with bisexual flowers autogamy only occurs
 3) Autogamy occurs in bisexual flowers only
 4) Either autogamy or geitonogamy occurs in dioecious plants
128. Match the following

List - A	List - B
A. Most convincing evidence in favour of organic evolution.	i. Atavistic organs
B. Strongly support the concept on organic evolution.	ii. Evidences from cell and molecular biology.
C. Clearly explain the path of evolution.	iii. Vestigial organs
D. The most detailed and convincing evidence in favour of biological evolution	iv. Connecting links

- 1) A – iii, B – iv, C – i, D – ii 2) A – i, B – iii, C – iv, D – ii
 3) A – ii, B – i, C – iii, D – iv 4) A – iii, B – i, C – iv, D – ii

129. Observe the following diagram and identify A, B and C in the figure respectively



- 1) Coleoptile, Epiblast, Coleorhiza 2) Coleoptile, Shoot apex, Coleoptile
 3) Coleorhiza, Epiblast, Coleoptile 4) Scutellum, Coleoptile, Coleorhiza
130. The dynamic nature of species was proposed by
 1) Author of “The Origin of Species” 2) Author of “Natural History”
 3) Author of “Systema Naturae” 4) Author of “Historia Generalis Plantarum”
131. Production of seeds without fertilization is called
 1) Polyembryony 2) Apomixis 3) Parthenocarpy 4) Amphimixis
132. In the analysis of species area relationship among tropical rain forest, if the slope is more than 45° the value of ‘Z’ is
 1) 0.6 2) 1 3) 1.2 4) 1.7
133. Pioneers in xerarch and hydrarch successions respectively are
 1) Bryophytes and Lichens 2) Lichens and Phytoplanktons
 3) Lichens and bryophytes 4) Lichens and submerged plants
134. In which of the following organisms “blind sac plan” was first formed?
 1) Cnidarians 2) Flat worms 3) Nematodes 4) Chordates
135. Drought evaders or escapers are
 1) Ephemerals 2) True xerophytes 3) Non-succulents 4) Succulents

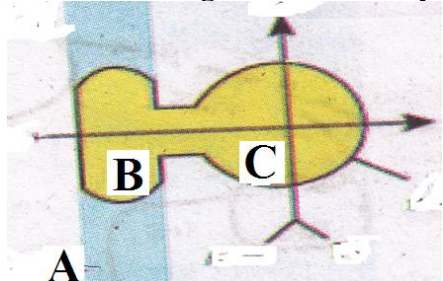
- 136. Primary induction can not be found in**
 1) Pseudocoelomates 2) Schizocoelomates 3) Eucoelomates 4) Human beings
- 137. In pteris, each sorus is protected by the reflexed margin of the fertile leaflet called**
 1) Ramenta 2) Indusium 3) False indusium 4) fronds
- 138. Epididymis is lined with**
 1) Stratified cuboidal epithelium 2) Pseudostratified ciliated epithelium
 3) Pseudostratified non ciliated epithelium 4) Ciliated columnar epithelium
- 139. Arrange the following in ascending order based on their imbibing capacities**
a) Wheat grains b) Cotton fibres c) Pea seeds
 1) b, a, c 2) c, a, b 3) a, b, c 4) c, b, a
- 140. Which of the following statements is correct?**
 1) Histamine acts as vasodilator and bronchodilator
 2) Histamine and bradykinin act as vasoconstrictors and bronchoconstrictors
 3) Histamine acts as vasodilator and bronchoconstrictor
 4) Serotonin acts as vasoconstrictor and bronchoconstrictor
- 141. The ratio of e^- , H^+ and ATP required for conversion of N_2 into $2NH_3$ is**
 1) 1:2:2 2) 1:1:1 3) 1:1:2 4) 2:1:2
- 142. If 'the most abundant serum protein' level falls in blood plasma.**
 1) Hydrostatic pressure increases 2) Hydrostatic pressure decreases
 3) Oncotic pressure decreases 4) Colloidal osmotic pressure increases
- 143. Inhibition of cell division occurs due to lack or low level of**
 1) N Zn Mo 2) N K S Mo 3) K N Zn Mo 4) Ca Mg K
- 144. Match the following.**
List – A
A. Basophils
B. Acidophils
C. Neutrophils
D. Lymphocytes
E. Monocytes
List – B
i. Large cytoplasmic granules
ii. Peripheral cytoplasm
iii. Phagocytes
iv. Small cytoplasmic granules
v. Irregular cytoplasmic granules
- | | A | B | C | D | E |
|----|---|---|-----|----|-----|
| 1) | v | i | ii | iv | iii |
| 2) | i | v | iv | ii | iii |
| 3) | v | i | iii | iv | ii |
| 4) | v | i | iv | ii | iii |
- 145. If 2 glucose molecules are formed as net gain through Calvin cycle, how many Erythrose 4-phosphate molecules are formed in the C_3 cycle ?**
 1) 2 2) 4 3) 6 4) 8
- 146. The people who live at higher altitudes generally show**
 1) Polycythemia 2) Erythrocytopenia 3) Leucocytopenia 4) Erythrocytosis
- 147. Elements involved in photolysis of water are**
a) Ca^{2+} b) Mn^{2+} c) Cl^- d) K^+
 1) a and b only 2) b and c only 3) a, b and c 4) b, c and d
- 148. Statocysts occur in**
 1) Hydra 2) Adamsia 3) Rhizostoma 4) Physalia
- 149. The ratio of substrate level phosphorylations that occur during glycolysis and Krebs cycle respectively is**
 1) 1:1 2) 2:1 3) 1:2 4) 3:1
- 150. Match the following**
List-A
A. Echinococcus
B. Ancylostoma
C. Convoluta
List-B
i) Syncytial epidermis
ii) Collagenous cuticle
iii) Bifurcated intestine

D. Wuchereria iv) Syncytial tegument

E. Bilharzia v) Rhabdites

	A	B	C	D	E
1)	IV	V	I	II	III
2)	IV	I	V	II	III
3)	IV	II	III	I	V
4)	V	I	III	II	IV

151. Observe the figure and identify A, B and C respectively



- | | |
|---|--|
| 1) Inner mitochondrial membrane, F_1, F_0 | 2) Inner mitochondrial membrane, F_0, F_1 |
| 3) Mitochondrial matrix, F_0, F_1 | 4) Outer membrane of mitochondrion, F_0, F_1 |

152. Given below are four matchings of an animal and its kind of respiratory organ

A. Silver fish – Trachea B. Scorpion – Book lungs

C. Sea squirt – Pharyngeal gills

D. Dolphin – gills

The correct matchings are

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

153. Identify wrong statement

- 1) NAA and 2,4-D are synthetic auxins
- 2) Gibberellins promote bolting in Cabbages
- 3) Ethylenepromotes female flowers in cucumbers
- 4) Auxins help to prevent the abscission of older mature leaves and fruits

154. Identify the incorrect matching of a class and its characters.

- 1) Chondrichthyes – amphicoelous vertebrae
- 2) Amphibia – Sternum, columellauris
- 3) Reptilia – Sinus venosus, micro lecithal eggs
- 4) Mammalia – metanephric kidneys, Uriotelic

155. One of the following bacteria play a great role in re cycling nutrients like nitrogen, phosphorous, iron and sulphur

- | | |
|---------------------------------|----------------------------------|
| 1) Chemo-autotrophic bacteria | 2) Photo- autotrophic bacteria |
| 3) Photo-heterotrophic bacteria | 4) Chemo- heterotrophic bacteria |

156. In the life cycle of *Entamoeba*, karyokinesis takes place during

A. Trophozoite stage B. Pre cystic stage C. Cystic stage D. Metacystic stage

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

157. Potato spindle tuber disease is caused by

- | | | | |
|----------|-----------|--------------|-----------|
| 1) Prion | 2) Virion | 3) Bacterium | 4) Viroid |
|----------|-----------|--------------|-----------|

158. The respective enzymes secreted by *Entamoeba* and *Plasmodium* are

- | | |
|------------------------------|--------------------------------|
| 1) Histolysins and lypolytic | 2) Proteolytic and cytolytic |
| 3) Cytolytic and proteolytic | 4) Proteolytic and histolysins |

159. In F_2 generation of Mendel's dihybrid cross the percentage of recombinants formed is

- | | | | |
|--------|----------|--------|----------|
| 1) 25% | 2) 62.5% | 3) 50% | 4) 37.5% |
|--------|----------|--------|----------|

160. One of the following is the set of infective stages to erythrocytes in the life cycle of malaria parasite

- 1) Cryptozoite, micrometacryptozoite, erythrocyticmerozoite
- 2) Cryptozoite, micromatacryptozoite, sporozoite
- 3) Cryptozoite, micrometacryptozoiteerythrocyticmerozoite
- 4) Cryptozoite, micrometacryptozoite, erythrocyticmerozoite, hypnozoite

