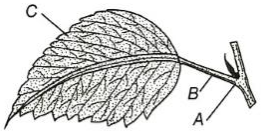
BIOLOGY

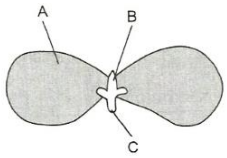
91. Choose the correct sequence in the hierarchy of taxonomic categories in descending order.
    a) Species-genus-family-order-class-division
    b) Division-order-class-family-genus-species
    c) Division-class-family-order-genus-species
    d) Division-class-order-family-genus-species
92. Where is Biosphere Reserve Simlipal located?
    a) Kerala
    b) Odisha
    c) Asom
    d) Sikkim
93. Binomial system of nomenclature was given by
    a) Julian Huxley
    b) Bentham and Hooker
    c) Linnaeus
    d) Casper Bauhin
94. Murein is not found in the cell wall of
    a) *Nostoc*
    b) Eubacteria
    c) Cyanobacteria
    d) Diatoms
95. Viruses are also known as
    a) Nucleoprotein particle
    b) Virion
    c) Lipoprotein particles
    d) Core
96. The leaves in pteridophytes are small as in
    a) *Volvox*
    b) *Marsilia*
    c) *Selaginella*
    d) *Azolla*
97. *Ectocarpus*, *Dictyota*, *Laminaria*, *Sargassum* and *Fucus* belongs to the class
    a) Phaeophyceae
    b) Rhodophyceae
    c) Chlorophyceae
    d) Cynophyceae
98. Larva of *Sycon* is
    a) Parenchymula
    b) Amphiblastula
    c) Redia
    d) Trochophore
99. Choanocyte is the characteristic feature of
    a) Sponges
    b) Arthropods
    c) Annelids
    d) None of these
100. The excretory material of bony fish is
    a) Urea
    b) Protein
    c) Ammonia
    d) Amino acid
101. Identify A, B and C in the given diagram



a) A-Leaf base, B-Petiole, C-Lamina
b) A-Leaf base, B-Lamina, C-Petiole
c) A-Lamina, B-Petiole, C-Leaf base
d) A-Lamina, B-Leaf base, C-Petiole

102. Which one of the following represents the floral characters of Poaceae?
a) Pedicellate, bracteates, bisexual, tetramerous, actinomorphic, complete and superior ovary
b) Pedicellate, bracteates, bisexual, pentamerous, zygomorphic, complete and superior ovary
c) Sessile, bracteates, bracteolate, incomplete, uni or bisexual, perianth modified into lodicules, stamens three, syncarpous, superior ovary and feathery stigma
d) Bracteate, unisexual, actinomorphic, stamens five and inferior ovary

103. Identify *A*, *B* and *C* in the given diagram



a) A-Plumule, B-Cotyledon, C-Radicle
b) A- Radicle, B-Cotyledon, C-Plumule
c) A-Cotyledon, B-Plumule, C-Radicle
d) A-Cotyledon, B-Radicle, C-Plumule

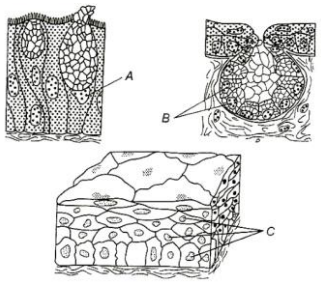
104. Which of the following statements are correct?
I.When a fruit develops from the inflorescence, it is composite.
II.Mesocarp is the edible part in apple.
III.Gynobasic style is seen in *Ocimum*.
IV.Hypanthodium is a special type of inflorescence found in *Euphorbia* species.
a) I and IV are correct
b) I and III are correct
c) I and II are correct
d) II, III and IV are correct

105. Axillary bud originates from
a) Meristem
b) Shoot apical meristem
c) Root apical meristem
d) Secondary meristem

106. Which of the above following are simple tissues?
I. Parenchyma
II. Collenchyma
III. Sclerenchyma
a) I and II
b) II and III
c) I and III
d) I, II and III

107. Exchange of gases takes place in cockroaches by the process of
a) Diffusion
b) Osmosis
c) Expiration
d) None of these

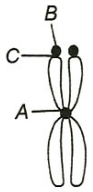
108. Identify A, B and C in given figures and choose the correct combination of options



a) A-Unicellular gland, B-Multicellular gland, C-Multilayered cells
b) A-Multicellular gland, B-Unicellular gland, C-Squamous epithelium
c) A-Goblet gland, B-Multicellular gland, C-Columnar epithelium
d) A-Flattened cell, B-Multilayered cells, C-Transitional epithelium

109. In a prokaryotic cell, the ratio of A + T/G + C is
a) > 1
b) < 1
c) $= 1$
d) None of these

110. Which of the following is the correct representation of A, B and C in the given figure of a chromosome?



a) A-Centromere, B-Satellite, C-Secondary constriction
b) A-Centromere, B-Satellite, C-Primary constriction
c) A-Centriole, B-Satellite, C-Primary constriction
d) A-Centriole, B-Satellite, C-Secondary constriction

111. 'G' in DNA strand base pairs with 'C' by 3... bonds
a) Hydrogen
b) Von der Waal
c) Covalent
d) Ionic

112. Which of the following is the example of structural protein?
a) Myosin
b) Collagen
c) Keratin
d) All of these

113. Which one of the following stages corresponds to Mendel's law of independent assortment?

a) Anaphase-II b) Anaphase-I c) Metaphase-I d) Telophase-I

114. Which of the following statements are correct for meiosis?
I. Meiosis is a double division. It gives rise to four cells
II. The cells undergoing meiosis may be haploid or diploid
III. No bouquet stage is recorded
IV. Pairing or synapsis of homologous chromosomes takes place during zygotene of prophase-I and continues upto metaphase-I
Option containing correct statement is
a) I only
b) I and IV
c) II and III
d) All of these

115. Read carefully the following statements and choose the right answer from the options given below
I. Diffusion is a slow process and it do not depends upon the living system
II. Usually process of diffusion does not need energy
III. Diffusion can occur from one part of a cell to another part of the same cell or from one cell to another and from one tissue to another tissue
IV. Diffusion is a rapid process over short distance, but extremely slow over long distances
a) I and III
b) I and II
c) III and IV
d) I, II, III and IV

116. In land plants, the guard cells differ from other epidermal cells in having
a) Mitochondria
b) Endoplasmic reticulum
c) Chloroplasts
d) Cytoskeleton

117. Which of the following experiments is called physiological demonstration of osmosis?
a) Thistle funnel, whose mouth is tied with egg membrane
b) Thistle funnel, whose mouth is tied with parchment paper
c) Photometer
d) Bell jar experiment

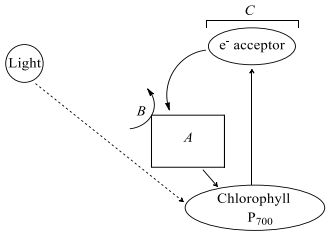
118. Which of the following is used as an alternative for minerals?
a) Rubber
b) Polythene
c) Decron
d) Cement

119. The plant ash indicates
a) Organic matter of plant
b) Mineral salts absorbed by plants

c) Both mineral salts and organic matter
d) Silica absorbed by plants

120. Photorespiration is the light dependent reaction in which utilisation of
a) Oxygen and release of H_2O takes place
b) Oxygen and release of H^+ takes place
c) Oxygen and release of CO_2 takes place
d) Oxygen and release of ATP takes place

121. Identify A, B and C in the given figure of cyclic phosphorylation and choose the correct option accordingly



a) A-ETS, B-ADP + Pi → ATP, C-PS-II
b) A-ETS, B-ADP + Pi → ATP, C-PS-I
c) A-$NADH_2$, B-ADP + Pi → ATP, C-PS-I
d) A-$NADH_2$, B-ADP + Pi → ATP, C-PS-II

122. In glycolysis, NADH + H^+ is formed from NAD, when
a) 3-phosphoglyceral dehyde (PGAL) is converted to 1, 3-bisphosphoglycerate (BPGA)
b) Triose phosphate is converted to 2-phosphoglycerate
c) 2-phosphoglycerate is converted to 2-phosphopyruvate
d) 2-phosphopyruvate is converted to 2-pyruvic acid

123. More carbon dioxide is evolved than the volume of oxygen consumed when the respiratory substrate is
a) Fat
b) Sucrose
c) Glucose
d) Organic acid

124. I. Lag phase
II. Stationary phase
III. Exponential phase
Arrange the above steps of geometrical growth (from beginning to last) in a correct sequence of their occurrence and choose the correct option accordingly
a) I → II → III
b) I → III → II
c) III → II → I
d) III → I → II

125. Heterophylly can be observed in
I. cotton
II. coriander
III. larkspur
Select the right option
a) I, II and III
b) I and II
c) II and III
d) I and III

126. Environment heterophylly is seen in
a) Cotton b) Coriander
c) Larkspur d) Buttercup

127. Deamination occurs in
a) Kidney b) Liver
c) Nephron d) Both (a) and (b)

128. The largest variety of digestive enzymes is found in
a) Carnivores b) Herbivores
c) Omnivores d) Parasites

129. Movement of the air into and out of the lungs is carried out by
a) Imbibition b) Pressure gradient
c) Osmosis d) Diffusion

130. CO_2 is carried by haemoglobin is
a) Carboxy haemoglobin
b) Carbamino haemoglobin
c) Carbamido haemoglobin
d) Deoxyhaemoglobin

131. 'Bundle of His' is a part of which one of the following organs in humans?
a) Heart b) Kidney
c) Pancreas d) Brain

132. RBCs have an average life span of
a) 90 days b) 100 days c) 120 days d) 140 days

133. The region of the nephrons found in the renal medulla is
a) Malpighian corpuscle
b) Proximal convoluted tubule
c) Distal convoluted tubule
d) Henle's loop

134. Volume of urine is regulated by
a) Aldosterone
b) Aldosterone and testosterone
c) ADH
d) Aldosterone and ADH

135. In cortical nephrons,
a) Loop of Henle is short
b) Loop of Henle is long
c) The PCT is very long
d) Th DCT is short

136. Where the saddle joints are presents in humans?
a) Between carpals and matacarpals
b) Atlas and axis
c) Radius and ulna
d) Carpals and phallanges

137. When body part moves towards the median axis the muscle is called
a) Abductor b) Adductor
c) Supinator d) Pronator

138. What is the purpose of locomotion performed by animals?
I. Search of food

II. Search of shelter
III. Search of mate
IV. Search of suitable breeding grounds
V. Search of favourable climate conditions
VI. Escaping from enemies/predators
Choose the correct option

a) All except V
b) All except IV
c) All except II
d) All of these

139. Choose the correct statements about Nissl's granules from the codes given below
I. There are regular masses of ribosomes
II. There are irregular masses of ribosomes and ER
III. There are granular bodies
IV. They synthesise proteins in the cell
codes

a) Only I
b) I and III
c) I and IV
d) II, III and IV

140. Which of the following statement is incorrect?
a) CNS is the site of information processing and control
b) CNS includes brain and spinal cord
c) PNS comprises of all the nerves of the body associated with CNS
d) The nerve fibre of DNS are of two types, *i.e.,* afferent and efferent fibres

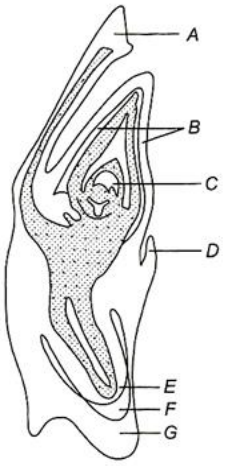
141. Progesterone hormone is secreted by
a) Corpus albicans
b) Corpus callosum
c) Corpus luteum in ovaries
d) Corpus uteri

142. Parathyroid hormone is a
a) Peptide
b) Carbohydrate
c) Lipid
d) Steroid

143. Product of sexual reproduction generally generates:
a) Prologned dormancy
b) New genetic combination leading to variation
c) Large biomass
d) Longer viability of seeds

144. During oogenesis, each diploid oocyte produces:
a) Four functional ova
b) Two functional eggs and two polar bodies
c) Four functional polar bodies
d) One functional egg and three polar bodies

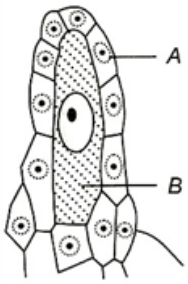
145. In figure find out coleoptile, shoot apex and epiblast

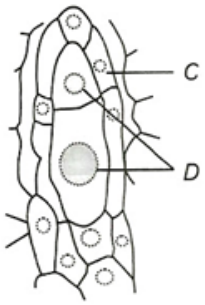


a) A, B and C
b) B, C and D
c) D, F and G
d) E, F and G

146. Which one of the following is a reference to xenogamy ?
a) Ripening of androecium earlier to gynoecium
b) Pollen grains of one flower reaching the stigma of another flower present on the same plant
c) Pollen grains of one flower reaching the stigma of another flower present on a different plant of the same species
d) The inability of pollen tube to terminate on the stigma of the same flower

147. Identify the labelling of given diagrams





a) A-MMC, B-Megaspore dyad, C-Nucellus, D-Nucleus
b) A-Nucellus, B- Megaspore dyad, C-Nucellus, D-MMC
c) A-Nucellus, B-MMC, C-Nucellus, D- Megaspore dyad
d) A-MMC, B-Nucellus, C- Megaspore dyad, D- Nucleus

148. Luteal phase is also called
a) Secretory phase b) Bleeding phase c) Menses phase d) Ovulatory phase

149. Binary fission is a mode of
a) Micropropagation
b) Vegetative propagation
c) Macropropagation
d) Sexual reproduction

150. The …A… secrete human chorionic gonadotropin hormone. The hCG maintains the …B… and stimulates it to secrete …C… The latter maintains the …D… of the uterus and causes it to grow throughout pregnancy
This also prevents …E… Progesterone also cause increased secretion of mucous in the cervix of the uterus that forms a protective plug during pregnancy
A to E in above paragraph, is
a) A-trophoblastic cell, B-corpus luteum, C-progesterone, D-endometrium, E-menstruation
b) A-trophoblast, B-corpus luteum, C-progesterone, D- menstruation, E-endometrium
c) A-trophoblast, B-corpus luteum, C-endometrium, D- menstruation, E-progesterone
d) A-trophoblast, B- progesterone, C-corpus luteum, D- menstruation, E-endometrium

151. Test tube baby means a baby born when
a) The ovum is fertilized externally and thereafter implanted in the uterus
b) It develops from a non-fertilized egg
c) It is developed in a test tube
d) It is developed through tissue culture method

152. Spermicidal cream used on the coating of condoms, diaphragms, cervical cap and vaults are
a) For lubrication
b) For shining
c) For increasing effectiveness
d) None of the above

153. Copper releasing IUDs are used for suppressing the
a) Activity of ova
b) Activity of the uterus
c) Motility of the sperms
d) Motility of ova

154. When one sex chromosome is lacking in female and males are homogametic, in that condition, the sex chromosomal representation is
   a) ZO-ZZ
   b) XY-XX
   c) XX-XO
   d) ZW-ZZ

155. I. Myotonic dystrophy is an autosomal dominant trait
   II. Sickle-cell anaemia is an autosomal recessive trait
   III. Failure of segregation of alleles results in chromosomal loss
   IV. Failure of segregation of allele result in chromosomal gain
   V. Cystic fibrosis is a Mendelian disorder
   Correct statements are
   a) I, II, III and IV
   b) I, III, IV and V
   c) I, II, IV and V
   d) All of these

156. Lampbrush chromosomes sre seen in
   a) Interphase
   b) Zygotene
   c) Diplotene
   d) metaphase

157. Assuming that the level of glucose is low, a mutation occurred in the repressor of the lacoperon in $E.coli$, preventing the binding of the repressor to the operator. It will result in

a)	b)	c)	d)
Constitutive expression of the *lac* operon genes	Lack of expression or reduced expression of the *lac* operon genes under all circumstances	Expression of the genes only when lactose is present	Expression of the genes only when lactose is absent

158. In bacteria, which enzyme catalyses the transcription of all types of RNA (mRNA, tRNA, and rRNA)
   a) DNA dependent RNA polymerase
   b) DNA dependent DNA polymerase
   c) RNA dependent RNA polymerase
   d) RNA dependent DNA polymerase

159. Evolution that shift the allele frequency in a study consistent direction is called?
   a) Directional evolution
   b) Disruptive evolution
   c) Molecular evolution
   d) All of these

160. Evolution is
   a) Development of DNA from nucleotides.
   b) Development of organism through time.
   c) Development of a cell from chemicals.
   d) Cloning

161. Gonorrhea is caused by
   a) *Treponema pallidum*
   b) *Entamoebagingivalis*
   c) *Mycobacterium leprae*
   d) *Neisseria gonorrhoeae*

162. Which one of the following is correctly matched?
   a) Body louse - Typhoid
   b) House fly - Yellow fever
   c) *Anopheles* - Malaria
   d) *Aedes*- Plague

163. Drugs, that are normally used as medicines to help the patients cope with mental illness are
   a) Barbiturates
   b) Amphetamines
   c) Lysergic acid diethyl amides
   d) All of the above

164. Which one of following is our indigenous breed of chicken?
   a) Plymouth Rock
   b) White Leghorn
   c) Aseel
   d) Rhode Island Red

165. A beast of burden which needs little care is:
   a) Pig b) Donkey c) Mule d) Yak

166. The raw material obtained, from which one of the following plants, and is used in paper making?
   a) *Jerusalem artichoke*
   b) *Oryza sativa*
   c) *Sorghum vulgare*
   d) *Butea monosperma*

167. Leaves of which plant can sharpen the memory?
   a) *Asparagus*
   b) *Adhatoda*
   c) *Aloe vera*
   d) *Ocimum*

168. Two enzymes responsible for restricting the growth of bacteriophages in $E.coli$ were isolated. One was methylase and other was restriction endonuclease. What is the significance of methylase?
   a) Protection of host DNA from the action of restriction endonuclease by adding methyl group to one or two bases usually with in the sequence recognized by restriction enzyme
   b) Able to ligate the two cohesive ends of DNA molecule
   c) Able to remove the methyl group and hence, prevent the action of restriction endonuclease on host DNA
   d) Able to cut the DNA of bacteriophage at specific sites

169. PCR technique was invented by
   a) Boyer
   b) Kary Mullis
   c) Cohen
   d) Sanger

170. Palaeontologists unearthed a human skull during excavation. A small fragment of the scalp tissue was still attached to it. Only little DNA could be extracted from it. If the genes of the ancient man need to be analysed, the best way of getting sufficient amount of DNA from this extract is
   a) By hybridizing the DNA with a DNA probe
   b) By subjection the DNA to polymerase chain reaction
   c) By subjecting the DNA to gel electrophoresis
   d) By treating the DNA with restriction endonucleases

171. Animals whose DNA is manipulated to possess and express an extra (foreign) gene are known as
a) Transgenic animal b) Hybrid animal
c) Transversion animal d) All of these

172. Today, transgenic models have been developed for many human diseases, which includes
I. rheumatoid arthritis II. Alzheimer's disease
III. cancer IV. Cystic fibrosis
Choose the correct option
a) I and II b) II and IV
c) I, II and IV d) I, II, III and IV

173. Autecology is the study of relationship between
a) Population and its environment
b) Communities and its geographical area
c) Ecosystem and its environment
d) None of the above

174. In which one of the following pairs is the specific characteristic of soil not correctly matched?
a) Laterite - Contains aluminium compound
b) Terra - Most suitable for roses
c) Chernozems - Richest soil in the world
d) Black Soil - Rich in calcium carbonate

175. Terai forest is
a) Tropical forest
b) Coniferous forest
c) Deciduous forest
d) Temperate deciduous forest

176. Food chain consists of
a) Plants b) Herbivores
c) Carnivores d) All of these

177. Which of the following expanded forms of the following acronyms is correct?
a) UNEP- United Nations Environmental Policy
b) EPA – Environmental Pollution Agency
c) IUCN – International Union for Conservation of Nature and Natural Resources
d) IPCC – International Panel for Climate Change

178. Which of the following pairs of an animal and a plant represents endangered organisms in India?
a) *Bentinckianicobarica*and red panda
b) Tamarind and rhesus monkey
c) *Cinchona* and leopard
d) Banyan and black buck

179. Which of the following is a secondary air pollution?
a) Hydrocarbons b) Smog
c) Particulate matter d) Automobile exhausts

180. CO_2, CH_4, N_2O and CFCsare called green house gases because they absorb and emit
a) UV-rays b) Heat rays
c) X-rays d) Gamma rays