90. Paracetamol is a/an
    a) Antipyretic
    b) Analgesic
    c) Both (a) and (b)
    d) Antimalarial

91. The first phylogenetic system of plant classification was proposed by
    a) Engler
    b) Engler and Prantl
    c) Eicher
    d) Bentham and Hooker

92. A taxon is a
    a) Group of related species
    b) Group of related families
    c) Type of living organism
    d) Taxonomic group of any ranking

93. Binomial system of nomenclature was given by
    a) Engler
    b) Linaeus
    c) Prantl
    d) Both (a) and (C)

94. During conjugation in *Paramecium*
    a) Out of the four micronuclei formed, three degenerate
    b) Out of six macronuclei formed, four degenerate
    c) Zygote nucleus undergoes eight successive division in each conjugant
    d) Out of 16 nuclei, only 4 degenerate

95. Auxospores and homocysts are formed, respectively by
    a) Several diatoms and a few cyanobacteria
    b) Several cyanobacteria and several diatoms
    c) Some diatoms several cyanobacteria
    d) Some cyanobacteria and many diatoms

96. Which one of the following is a vascular cryptogam?
    a) *Equisetum*
    b) *Ginkgo*
    c) *Marchantia*
    d) *Cedrus*

97. The cones bearing megasporophyll with ovules are called
    a) Male strobili
    b) Female strobili
    c) Megasporangia
    d) Microsporangia

98. Characteristic of coelenterate is occurrence of
    a) Nematocysts
    b) Polymorphism
    c) Flame cells
    d) Choanocytes

99. Sea fan belongs to
    a) Coelenterata
    b) Porifera
    c) Echinodermata
    d) Mollusca

100. Hydroskeleton is not found in
    a) Mollusca
    b) Echinoderms

c) Annelida
d) Cnidarian

101. In cauliflower, the inflorescence is
a) Corymbose b) Cymose
c) Raceme d) Capitulum

102. Parts of the plants were observed. Structure-A develops aerially and produces roots when comes in contact with the soil. Structure-B develops from underground part of the stem, grow obliquely, becomes aerial and produces roots on its lower surface. Identify, respectively the structure of A and B.
a) Sucker, stolon b) Stolon, runner
c) Stolon, sucker d) Runner, stolon

103. 

The above inflorescence is a/an
a) Cyathim b) Dichasial cyme
c) Umbel d) Panicle

104. Small branches produced from lower 2 to 3 nodes in jowar are called
a) Culm b) Prop roots
c) Ligule d) Tillers

105. Cuticle is absent in which part of plant?
a) Leaves b) Root
c) Stem d) Pneumatophores

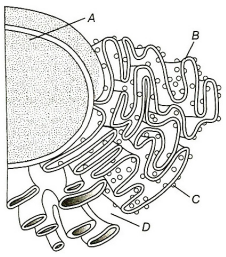
106. In grasses, the guard cells are
a) Kidney-shaped b) Sphere-shaped
c) Dump-bell-shaped d) Bean-shaped

107. Red cell count is carried out by
a) Haemocytometer b) Haemoglobinometer
c) Sphygmomanometer d) Electrocardiogram

108. Debove's membrane is a layer of
a) Muscular tissue b) Epithelial tissue
c) Connective tissue d) All of these

109. Which of the following differentiate plant cells from animal cells?
a) Large vacuole, plastid and cell wall b) Cell wall, plastid and centriole
c) Cell wall, plastid and mitochondria d) Cell membrane, plastid and cell wall

110. Identify the components labelled $A$, $B$, $C$, $D$ and $E$ in the diagram given below from the list I to VIII given along with it

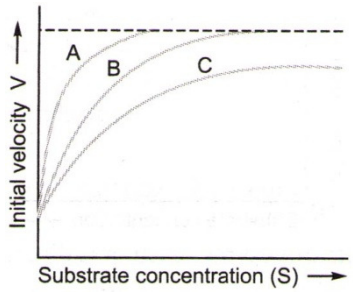



Components
I. Cristae of mitochondria
II. Inner membrane of mitochondria
III. Cytoplasm
IV. Smooth endoplasmic reticulum
V. Rough endoplasmic reticulum
VI. Mitochondrial matrix
VII. Ribosome
VIII. Nucleus
The correct components are

A B C D E

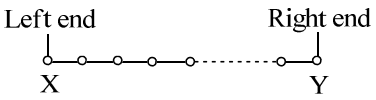
a) VIII V VII III IV
b) I IV VII VI III
c) VI V IV VII I
d) V I I II IV

111. The figure given below shows three velocity substrate concentration curves for an enzyme reaction. What do the curves A, B and C depict respectively?




a) A-normal enzyme reaction, B-competitive inhibition, C-non-competitive inhibition
b) A-enzyme with an allosteric modulator added, B-normal enzyme activity, C-competitive inhibition
c) A-enzyme with an allosteric stimulator, B-competitive inhibitor added, C-normal enzyme reaction
d) A- normal enzyme reaction, B-non-competitive inhibitor added, C- allosteric inhibitor added

112. Name the term given to the left and right ends of a polysaccharide




a) Left end—N —terminal end, Right end—C —terminal end
b) Left end—reducing end, Right end—non-reducing end

c) Left end– non-reducing end, Right end–reducing end
d) Left end–C –terminal end, Right end–N –terminal end

113. Select the matched ones.

I . S-phase - DNA replication
II. Zygotene - Synapsis
III. Diplotene - Crossing over
IV. Meiosis - Both haploid and diploid cells
V $G_2$-phase - Quiescent stage

a) I and II only
b) III and IV only
c) III and V only
d) I,III and V only

114. Which of the protein is found in spindle fibre?

a) Tubulin
b) Albumin
c) Mucin
d) Haemoglobin

115. In osmosis, there is movement of

a) Solute only
b) Solvent only
c) Both (A) and (B)
d) Neither (A) nor (B)

116. Which one is true about guttation?

a) It occurs through specialized pores called hydathodes
b) It occurs in herbaceous plants when root pressure is low and transpiration is high
c) It only occur during the day time
d) It occurs in plants growing under conditions of low soil moisture and high humidity

117. Which pathway applies least resistance to the movement of water?

a) Apoplast pathway
b) Symplast pathway
c) Trans membrane pathway
d) Vacuolar pathway

118. Which of the following is considered as partial mineral elements in plants?

a) Potassium b) Phosphorus c) Nitrogen d) Iron

119. Which of the following is considered to be the best chemical method of fixing atmospheric nitrogen?

a) Fisher method
b) Decan method
c) Haber-Bosch method
d) Parnas-Meyerhoff method

120. Every $CO_2$ molecule entering the Calvin cycle needs

a) 2 molecule of NADPH and 3 molecule of ATP for its fixation
b) 2 molecule of NADPH and 2 molecule of ATP for its fixation
c) Variable amount of ATP
d) Only NADPH

121. Compensation point refers to
   a) Little photosynthesis
   b) Beginning of photosynthesis
   c) Rate of photosynthesis equals to the rate of respiration
   d) None of the above

122. The process by which ATP is produced in the inner membrane of a mitochondrion, the electron transport system transfers protons from the inner compartment to the outer, as the protons flow back to the inner compartment, the energy of their movement is used to add phosphate to ADP, forming ATP is
   a) Chemiosmosis
   b) Phosphorylation
   c) Glycolysis
   d) Fermentation

123. Glycolysis
   I. causes partial oxidation of glucose (one molecule) to form 2-molecules of pyruvic acid and 2 ATP as net gain
   II. takes place in all living cells
   III. uses 2 ATP at two steps
   IV. scheme was given by Gustav Embden, Otto Mayerhof and J Parnas
   Choose the correct option containing appropriate statements from the above
   a) I, II and III
   b) I, II and IV
   c) I, II, III and IV
   d) Only I

124. Rapid and dramatic increase in shoot length is called
   a) Triple response growth
   b) Bolting
   c) scarification
   d) Night break effect

125. Which one of the following is a natural growth inhibitor?
   a) NAA
   b) ABA
   c) IAA
   d) GA

126. Auxin in plant means for
   a) Cell elongation
   b) Fruit ripening
   c) Cell division
   d) Inhibition of root growth

127. Characteristic of mammalian liver is
   a) Kupffer's cells and leucocytes
   b) Leucocytes and canaliculae
   c) Glisson's capsules and Kupffer's cells
   d) Glisson's capsule and leucocytes

128. Diastema refers to
   a) Gap between the teeth
   b) Gap between tongue and teeth
   c) Ciliary cells on alimentary wall
   d) Cell lining along pharynx

129. Haemoglobin of the human blood forms a stable complex compound with which of the

following gas leading to death?

a) Oxygen
b) Carbon dioxide
c) Carbon monoxide
d) Nitrogen

130. Carbon dioxide is transported in blood in the form of

a) Haemoglobin
b) Oxyhaemoglobin
c) Carbonate
d) Bicarbonate

131. Which is largest among the given type of leucocytes?

a) Eosinophils
b) Basophils
c) Monocytes
d) Lymphocytes

132. Generally, artificial pacemaker consists of one battery made up of

a) Nickel
b) Dry cadmium
c) Photo sensitive material
d) Lithium

133. Erythropoietin is secreted from

a) Pituitary gland
b) Pancreas
c) Adrenal gland
d) Kidney

134. Inner to the hilum of the kidney, there is a broad funnel-shaped space called

a) Renal pelvis
b) Medulla
c) Cortex
d) Adrenal gland

135. I. Ureter II. Renal pelvis, III. Calyx IV. Urinary bladder V. Urethra
Choose the correct sequence of urine route to outside

a) I→II→III→IV→V
b) V→IV→III→II→I
c) V→III→IV→I→II
d) III→II→I→IV→V

136. Choose the correct properties of muscle fibres
I. Muscle fibre is lined by the plasma membrane called sarcolemma
II. Cytoplasm of the muscle fibre is called protoplasm
III. Sarcolemma of the muscle fibre encloses the sarcoplasm
IV. Muscle fibre is syncitium
Select the correct option

a) All except II
b) All except I
c) All except III
d) All except IV

137. Identify A, B and C along the given diagram


a) A-Troponin, B-Tropomyosin, C-Factin
b) A-Thick filament, B-Troponin, C-Tropomyosin
c) A-Myosin filament, B-Troponin, C-Tropomyosin
d) A-Meromyosin, B-Troponin, C-Tropomyosin

138. Centrum of $8^{th}$ vertebra of frog is

a) Procoelous
b) Acoelous
c) Amphicoelous
d) Amphiplatyan

139. Nerve impulse travels faster in

a) Medullated nerve fibre
b) Non- medullated nerve fibre
c) Both (a) and (b)
d) None of the above

140. Number of cranial nerves in frog
a) 10 pairs b) 9 pairs
c) 12 pairs d) None of these

141. Secretion of PTH is regulated by the circulating levels of …… in blood
a) $Na^+$ b) $I^-$ c) $Ca^{2+}$ d) $Fe^{2+}$

142. GIP (Gastric Inhibitory Peptide)
a) Inhibits the gastric secretion and motility
b) Inhibits the gastric secretion only
c) Activate the gastric secretion and motility
d) Activate the gastric secretion only

143. Where does syngamy occur in ……..
a) External medium b) Internal medium
c) Both (a) and (b) d) None of these

144. Binary fission is the mode of asexual reproduction in
a) *Amoeba* b) *Paramecium*
c) Both (a) and (b) d) Yeast

145. A scion is grafted to a stock. The quality of fruits produced will be determined by the genotype of
a) Stock b) Scion
c) Both (a) and (b) d) Neither (a) nor (b)

146. Chances of pollination in air and water are increased by increasing number of pollens. This statement is
a) True b) False
c) Sometimes (a) and sometimes (b) d) Neither (a) nor (b)

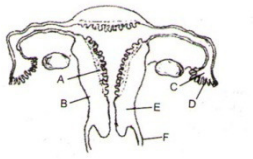
147. Most oldest viable seed is of
a) Lupine
b) *Ficus*
c) Date palm
d) Phoenix

148. Sertoli's cell are regulated by the pituitary hormone known as
a) FSH b) GH c) Prolactin d) LH

149. Which hormone level increases in the luteal phase?
a) LH
b) Progesterone
c) Testosterone
d) FSH

150. If a germ cell in a female gonad and a germ cell in a male gonad begin undergoing meiosis simultaneously, what will be the ratio of ova and sperm produced?
a) 1:1 b) 1:2 c) 1:4 d) 2:1

151. The figure given below depicts a diagrammatic sectional view of the female reproductive system of humans. Which one set of three parts out of A-F have been correctly identified?




a) C-Infundibulum, D-Fimbriae, E-Cervix
b) D-Oviducal funnel, E-uterus, F-Cervix
c) A-Perimetrium, B-Myometrium, C-fallopian tube
d) B-Endometrium, C- Infundibulum, D- Fimbriae

152. Oral polio vaccine and hepatitis first dose is given to a child at
a) 6 weeks after birth b) 10 weeks after birth
c) 20 weeks after birth d) 24 weeks after birth

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 the chromosome number of a given organism has one additional chromosome in one of the homologous pairs, the addition is known as
a) Trisomy b) Monosomy
c) Polyploidy d) nullisomy

155. Chromosomal mutations occurs due to
I. Deletion II. Duplication
III. Translocation IV. Inversion
Choose the correct option
a) I, II and III b) II, III and IV c) I, III and IV d) All of these

156. Heterogametic male condition does not occur in
a) Birds b) Humans
c) *Drosophila* d) Honey bee

157. Peptide synthesis inside a cell takes place in
a) Mitochondria b) Chromoplast
c) Ribosomes d) Chloroplast

158. Human chromosomes contain
a) $6.6 \times 10^9$ bp b) $6.8 \times 10^9$ bp
c) $6.9 \times 10^9$ bp d) $7.0 \times 10^9$ bp

159. Hardy-Weinberg principle is the
a) Genetic structure of a non-evolving population b) Genetic structure of an evolving population
c) Phenotypic structure of an evolving population d) Phenotypic structure of a non-evolving population

160. Which type of growth living organism undergoes?
a) Reversible

b) Apical
c) Accretion
d) Intussusception

161. Your immune system helps to protect you against viruses and bacteria that can cause sickness. Which cells are part of the immune system?
a) White blood cells
b) Red blood cells
c) Nerve cells
d) None of these

162. Haemozoin is released into blood during the infection of *Plasmodium vivax at* every
a) 24 h b) 48 h c) 72 h d) 12 h

163. Which one of the followin pairs is not correctly matched?
a) *Streptomyces* - Antibiotic
b) *Serratia* - Drug Addiction
c) *Spirulina* - Single cell protein
d) *Rhizobium*- Biofertilizer

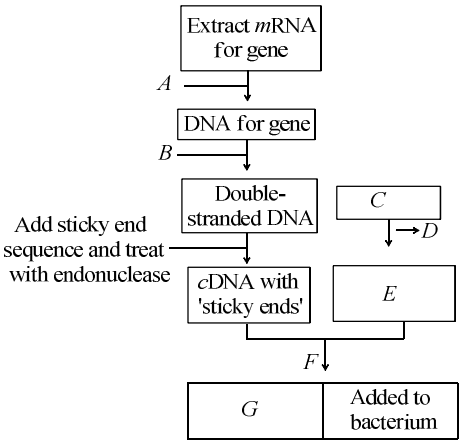
164. Which of the following is not an important characteristic of the green revolution?
I. Mechanised agriculture
II. Hybrid seeds
III. Slash and burn
Which of the above are correct?
a) Only I
b) Only II
c) Only III
d) I and III

165. The commercial jute fibers are:
a) Xylem fibres
b) Cortical fibres
c) Phloem fibres
d) Interxylary fibres

166. The plant most commonly used as green manure is
a) Dilbergia sissoo
b) Polyalthea
c) Sesbania aculeata
d) None of these

167. Which industrial products are synthesized from microbes?
I. Antibiotics II. Fermented beverages
III. Bioactive molecules IV. Enzyme
Choose the correct option
a) I, II, III and IV
b) II, III and IV
c) I, III and IV
d) III and IV

168. Identify and match the labelled items $A, B, C, D, E, F$ and $G$ in the diagram below from the list I-VII given with components




I. DNA polymerase
II. plasmid
III. plasmid with 'sticky ends'
IV. DNA ligase
V. restriction endonuclease
VI. recombinant DNA
VII. reverse transcriptase
The correct components are
A B C D E F G
a) VII I II V III IV VI
b) VII VI V IV III II I
c) VII V III I II IV VI
d) I II IV VI III V VII

169. I. *Ori* also controls the copy numbers of the linked DNA
II. If a foreign DNA ligates at the *Bam* HI site of tetracycline resistance gene in the vector pBR322, the recombinant plasmid loses the tetracycline resistance due to insertion of foreign DNA
Choose regarding the above statements
a) I is true, II is false
b) II is true, I is false
c) Both are true
d) Both are false

170. Out of the following which is a genetically engineered anti-viral protein?
a) Humulin
b) Interferon
c) Fumagillin
d) Griseofulvin

171. In the initial stages of protoplast culture, sorbitol/mannitol is added
a) As an additional source of carbon
b) As an additional source of energy
c) To keep cells alive after the removal of cell wall
d) As a osmotic stabilizer

172. Main objective of production/use of herbicide resistant GM crops is to
a) Eliminate weeds from the field without the use of manual labour
b) Eliminate weeds from the field without the use of herbicides
c) Encourage eco-friendly herbicides

d) Reduce herbicide accumulation in food articles for health safety

173. Character displacement take place when there is
   a) Geographic displacement
   b) Geographic overlapping
   c) Geographic non-overlapping
   d) Habitat displacement

174. Ecologist say that niche is like a species …A…, while habitat is like a …B… there A and B indicate
   a) A-education; B-occupation
   b) A-appearance; B-physiology
   c) A-occupation; B-address
   d) A-physiology; B-anatomy

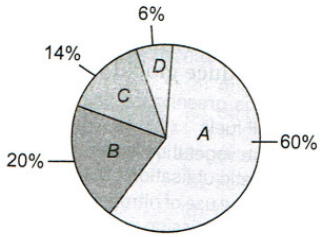
175. Which of the following is known as the sedimentary cycle because its reservoir is a sedimentary rock?
   a) Carbon cycle
   b) Hydrologic cycle
   c) Nitrogen cycle
   d) Phosphorus cycle

176. Which one of the following is correct for xerarch succession?
   a) Successional series from xeric to mesic condition
   b) Successional series from hydric to mesic condition
   c) Both (a) and (b)
   d) None of the above

177. Soil conservation is a practice, in which soil
   a) Is protected from being carried away by wind and water.
   b) Is well aerated
   c) Fertility is enhanced
   d) Erosion is allowed

178. Which of the following is *exsitu* conservation?
   a) Banning of Akhard Sikar in Similipal
   b) Breeding of animals in Nandan Kanha
   c) Protecting migration of birds in Chilka lake
   d) Protecting fishing in Bhitar Kanika

179. Study carefully the following pie diagram representing the relative contribution of various greenhouse gases to total global warming. Identify the gases $A, B, C$ and $D$




   a) A-$N_2O$, B $-$ $CO_2$, C $-$ $CH_4$, D $-$ CFCs
   b) A-$CO_2$, B $-$ $CH_4$, C $-$ CFCs, D $-$ $N_2O$
   c) A-$CH_4$, , B $-$ CFCs, C $-$ $N_2O$, D $-$ $CO_2$
   d) A-CFCs, , B $-$ $N_2O$, C $-$ $CO_2$, D $-$ $CH_4$

180. Term used for accumulation of non-degradable pollutant in higher trophic level is

a) Biomagnification
b) Eutrophication
c) Biome
d) Ecotone