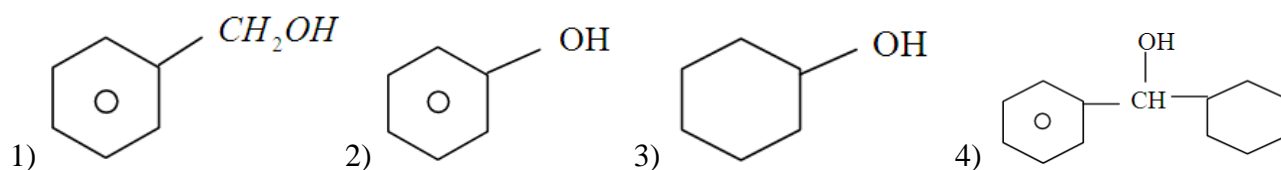


- 1)  $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} - \text{OCH}_2\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$  in both cases
- 2)  $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} = \text{CH}_2 \end{array}$  in both cases
- 3)  $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} - \text{OCH}_2\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$  and  $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} \\ || \\ \text{CH}_2 \end{array}$
- 4)  $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} \\ || \\ \text{CH}_2 \end{array}$  and  $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} - \text{OCH}_2\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$

84. Which of the following exhibits linkage isomerism

- 1)  $[\text{Co}(\text{NH}_3)_5\text{Br}]\text{SO}_4$                       2)  $[\text{Co}(\text{NH}_3)_5\text{NO}_2]\text{Cl}_2$   
 3)  $[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_3$                       4)  $[\text{Co}(\text{NH}_3)_6][\text{Cr}(\text{CN})_6]$

85. Which of the following compounds has the most acidic nature?



86.  $\text{CH}_3\text{CH}_2\text{COOH} \xrightarrow{\text{SOCl}_2} \text{B} \xrightarrow{\text{NH}_3} \text{C} \xrightarrow[\text{Br}_2]{\text{KOH}} \text{D}$  the structure of D is

- 1)  $\text{CH}_3\text{CH}_2\text{NHCH}_3$     2)  $\text{CH}_3\text{CH}_2\text{NH}_2$     3)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$     4)  $\text{CH}_3\text{CH}_2\text{CONH}_2$

87. Organic compound A of the molecular formula  $\text{C}_5\text{H}_{10}\text{Cl}_2$  is hydrolysed to compound B  $\text{C}_5\text{H}_{10}\text{O}$ , which gives an oxime with hydroxylamine and yellow ppt with a mixture of iodine and sodium hydroxide. The compound A should be

- 1)  $\text{CH}_3\text{CH}_2\text{CCl}_2\text{CH}_2\text{CH}_3$                       2)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CCl}_2\text{CH}_3$   
 3)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CHCl}_2$                       4)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHClCH}_2\text{Cl}$

88. Cyanohydrin of which of the following forms lactic acid

- 1)  $\text{CH}_3\text{CH}_2\text{CHO}$     2)  $\text{HCHO}$     3)  $\text{CH}_3\text{CHO}$     4)  $\text{CH}_3\text{COCH}_3$

89. Which of the following is more basic than aniline?

- 1) p-nitro aniline    2) benzyl amine    3) Di phenyl amine    4) Tri phenyl amine

90. Which of the following will be most stable diazomium salt  $\text{RN}_2^+\text{X}^-$ ?

- 1)  $\text{C}_6\text{H}_5\text{N}_2^+\text{X}^-$     2)  $\text{CH}_3\text{N}_2^+\text{X}^-$     3)  $\text{CH}_3\text{CH}_2\text{N}_2^+\text{X}^-$     4)  $\text{C}_6\text{H}_5\text{CH}_2\text{N}_2^+\text{X}^-$

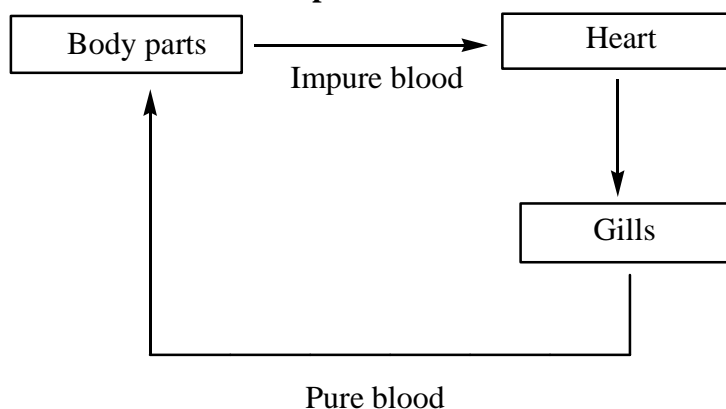
### BIOLOGY

91. Two organisms belongs to same class but not in the same family belongs to same \_\_\_\_\_

- 1) genus                      2) species                      3) variety                      4) order

92. **Starch**  $\xrightarrow[pH\ 6.8]{\text{salivary amylase}}$  **A . A is**  
 1) Monosaccharide      2) polysaccharides      3) Disaccharide      4) Amylopectin
93. **In potato, brinjal, makoi, lion, leopard. How many species, genera and families are there**  
 1) Species-5; Genus-3; Family-2      2) Species-4; Genus-2; Family-3  
 3) Species-5; Genus-2; Family-2      4) Species-4; Genus-3; Family-3
94. **The primary dentition in human differs from permanent dentition in not having one of the following type of teeth**  
 1) premolars      2) molars      3) incisors      4) canine
95. **Which of the following are homosporous pteridophytes**  
**I. Selaginella      II. Lycopodium      III. Salvinia      IV. Equisetum**  
 1) I & IV only      2) II & IV only      3) II & III only      4) III & IV only
96. **The blood leaving the lungs has all its hemoglobin oxygenated and gives up oxygen to the tissues because**  
 1) The tissue can absorb  $CO_2$  from oxyhaemoglobin  
 2)  $O_2$  concentration in tissues is lower and  $CO_2$  concentration is higher as compared to blood  
 3)  $O_2$  concentration in tissues is higher and  $CO_2$  concentration is lower as compared to blood  
 4) oxyhaemoglobin undergoes reduction in lungs
97. **In a 1.8kb long piece of ds-DNA,320 Adenine bases were found. What would be the number of cytosine bases?**  
 1) 580      2) 1160      3) 320      4) 1180
98. **Two friends are eating together in a dining table one of them suddenly starts coughing while swallowing some food. This coughing would have been due to the improper moment of**  
 1) tongue      2) thinking      3) epiglottis      4) diaphragm
99. **Tetradynamous condition is found in**  
 1) Ocimum sanctum      2) Salvia      3) Brassica compestris      4) Datura metal

100. **The given flow of blood circulation is represented as**



- 1) Fishes-incomplete double circulation      2) Fishes-single circulation  
 3) Amphibians-Incomplete double circulation      4) Amphibians-complete single circulation
101. **The most abundant component of cell after water is**  
 1) Lipid      2) protein      3) nucleic acids      4) Ions
102. **Which of the following is correct about human heart?**  
 1) The volume of both atria>the volume of both ventricles  
 2) The volume of both ventricles >the volume of both atria  
 3) The volume of both atria=the volume of both ventricles  
 4) The volume of both ventricles <the volume of both atria

103. Which of the following kingdom system did not distinguish between the prokaryotes and eukaryotes as well as unicellular and multicellular organisms

- 1) Whittaker's five kingdom system      2) Haeckel's three kingdom system  
3) Copeland's four kingdom system      4) Linnaeus two kingdom system

104. The number of nephrons in a kidney is equal to the

- 1) number of Bowman's capsules  
2) sum of Bowman's capsules and glomeruli  
3) double the number of Bowman's capsules      4) sum of kidneys in the body

105. Primary medullary rays are absent in

**I. Dicot stem      II. Dicot root      III. Monocot stem      IV. Monocot root**

- 1) I,II,III only      2) I&IV only      3) II,III,IV only      4) III,IV only

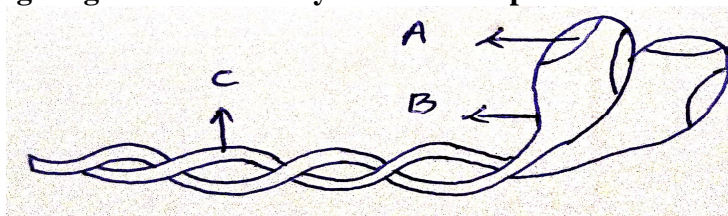
106. Which one of the following correctly explains the functions of a specific part of a human nephron?

- 1) **Henle's loop**-Most reabsorption of the major substances from the glomerular filtrate  
2) **DCT**- secretion of water, ions  
3) **Afferent arteriole**-carries the blood away from the glomerulus towards the renal vein  
4) **Podocytes**-Create minute space(slit pores) for the filtration of blood into the Bowman's capsule

107. Match column-I with column-II,III and select the correct option from the given codes

| Column-I           | Column-II            | Column-III                     |         |
|--------------------|----------------------|--------------------------------|---------|
| I. F.W.went        | (A) Auxin            | (P) fungus                     |         |
| II. Kurosawa       | (B) Cytokinin        | (Q) coleoptile of oat seedling |         |
| III. F.T Addicot   | (C) Gibberillic Acid | (R) DNA                        |         |
| IV. Skoog & millar | (D) Abscisic Acid    | (S) stress Hormone             |         |
| 1) I-AQ            | 2) I-AQ              | 3) I-AQ                        | 4) I-AQ |
| II-BP              | II-CP                | II-CP                          | II-CR   |
| III-CR             | III-CS               | III-DS                         | III-DS  |
| IV-DS              | IV-BR                | IV-BR                          | IV-BP   |

108. Study the following diagram and identify the correct option



- 1) C is made up of actin where as A and B are made up of tropomyosin  
2) B and C are made up of tropomyosin  
3) C has binding sites for ATP and actin  
4) A and B are made up of heavy meromyosin

109. In a cross involving  $F_1$  Hybrid flies, more number of parental type off springs were produced than the recombinant type off springs this indicate

- 1) Chromosomes failed to separate during meiosis  
2) The two genes are linked and present on the same chromosome  
3) Both the characters are controlled by more than one gene  
4) The two genes are located on two different chromosomes

110. Select the correct statement regarding the specific disorder of muscular (or) skeletal system

- 1) **Muscular dystrophy**- age related shortening of muscles  
2) **Osteoporosis**-decrease in bone mass and higher chances of fractures with advancing age  
3) **Myasthenia gravis**- Autoimmune disorder which inhibits sliding of myosin filaments.  
4) **Gout**- inflammation of joints due to extra deposition of calcium

111. "We two (I & You) need not posses the same nucleotide sequence for synthesis of insulin". This assessment is based on which feature of codon

- 1) universality      2) Ambiguity      3) Degeneracy      4) Non-Overlapping

- 112. Select the correct matching of the type of the joint with the example in human skeletal system.**
- 1) **condyloid joint** - between occipital condyles and Axis
  - 2) **pivot joint** -between Atlas and occipital condyles
  - 3) **Hinge joint** - between femur and tibio fibula
  - 4) **Gliding joint** -between carpals and meta carpals
- 113. Which of the following is not acceptable as a feature of genetic material**
- 1) It should be able to undergo changes at a higher rate
  - 2) It should be structurally and chemically stable
  - 3) It should be able to express itself as 'mendelian characters'
  - 4) It should be able to generate its replica
- 114. When a neuron is in resting state, ie, not conducting any impulse, the axonal membrane is**
- 1) Equally permeable to both Na<sup>+</sup>ions and K<sup>+</sup>ions
  - 2) Impermeable to both Na<sup>+</sup> and K<sup>+</sup>ions
  - 3) Comparatively more permeable to K<sup>+</sup> ions and low permeable to Na<sup>+</sup> ions
  - 4) Comparatively more permeable to Na<sup>+</sup> ions and nearly impermeable to K<sup>+</sup> ions
- 115. Which is not true for viroids**
- 1) They are smaller than viruses
  - 2) They contain ds-RNA as genetic material
  - 3) RNA has low molecular weight
  - 4) It causes potato spindle tuber disease
- 116. Which of the following senses is affected if the tectorial membrane is removed from human?**
- 1) balance
  - 2) auditory
  - 3) vision
  - 4) olfaction
- 117. Which one of the following is case of wrong matching?**
- 1) Somatic hybridization-Fusion of two diverse cells
  - 2) Embriod-Zygotic embryo
  - 3) micro propagation-in-vitro production of plants in large numbers
  - 4) callus-undifferentiated mass of cells
- 118. A man with a certain disease marries a normal woman. They have eight children (3 daughters and 5 sons). All the daughters suffer from their fathers disease but none of the sons are affected. Which of the following mode of inheritance do you suggest for this disease?**
- 1) sex linked recessive
  - 2) sex linked dominant
  - 3) autosomal dominant
  - 4) sex limited recessive
- 119. The gene that encodes for BT-protein specific to cotton ball worm is**
- I) cry IAc
  - II) cry II Ab
  - III) cry II AC
  - IV) cry I Ab
  - 1) I&IV
  - 2) I& II
  - 3) II&III
  - 4) II&IV
- 120. Of both normal parents, the chance of a male child becoming color blind are**
- 1) Possible when maternal grand mother is homozygous for colour vision
  - 2) Possible only when all the four grand parents had normal vision
  - 3) possible only when fathers mother was colour blind
  - 4) Possible only when mothers father was colour blind
- 121. Biolistics (gene-gun) is suitable for**
- 1) Selecting pathogen vectors
  - 2) transformation of plant cells
  - 3) constructing chimeric DNA
  - 4) DNA amplification
- 122. Which one of the following hormones through synthesized elsewhere is stored and released by the master gland?**
- 1) Luteinizing hormone
  - 2) prolactin
  - 3) melanocyte stimulating hormone
  - 4) antidiuretic hormone

123. **Trichoderma** is a effective biocontrol agent for several plant pathogens species of which belongs to class A and is also used for production of Bioactive molecule B. A & B are

**A**

- 1) Phycomycetes
- 2) Basidiomycetes
- 3) Deuteromycetes
- 4) Ascomycetes

**B**

- 1) Cyclosporin-A
- 2) statins
- 3) cytosporin-A
- 4) statins

124. A person suffers from frequent urination, feels thirsty and there is no glucose in the urine, what may be the cause

- 1) Hypersecretion of posterior lobe of pituitary
- 2) Hyposecretion of posterior lobe of pituitary
- 3) Hyposecretion of adrenal gland
- 4) Hypersecretion of thyroid

125. Non-N<sub>2</sub> fixing biofertilizer is

- 1) Anabaena
- 2) Oscillatoria
- 3) Aulosira
- 4) Glomus

126. Which of these options is correct with regard to statements X and Y?

**Statement X:** Some STDs do not show symptoms in females

**Statement Y:** Some STDs in females may remain undetected for long time

- 1) Statement X and Y are correct
- 2) Statement X and Y are wrong
- 3) Statement X is correct Y is wrong
- 4) Statement X is wrong Y is correct

127. Mis-match regarding the phenotypical ratios of following crosses is

- 1) YyRr x yyrr-1:1:1:1(pea)
- 2) tt x TT-1:1(pea)
- 3) yyRR x YYrr-9:3:3:1 (F<sub>2</sub> progeny of pea)
- 4) Rr x Rr-1:2:1(snapdragon)

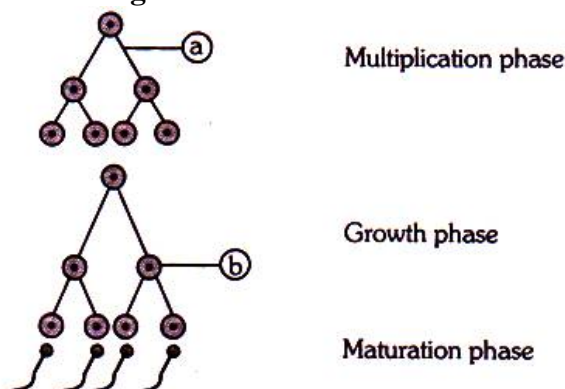
128. Which of the following viruses is not transferred through semen of an infected male?

- 1) Hepatitis B virus
- 2) Human immunodeficiency virus
- 3) Chikunguniya virus
- 4) Ebola virus

129. Which one of the following is not common between Bryophytes & pteridophytes

- 1) Presence of Archegonium
- 2) Embryo
- 3) Antherozoids motility
- 4) Root system

130. Which option is correct for the region labelled as 'a' and 'b' in the given diagram



- 1) a = Mitosis, b = Primary spermatocyte
- 2) a = Meiosis, b = Secondary spermatocyte
- 3) a = Mitosis, b = Secondary spermatocyte
- 4) a = Meiosis, b = Primary spermatocyte

131. Diplontic life cycle is observed in \_\_\_\_

- 1) Pteridophytes and many algae
- 2) Bryophytes and pteridophytes
- 3) Gymnosperms and Angiosperms
- 4) Bryophytes and spermatophytes

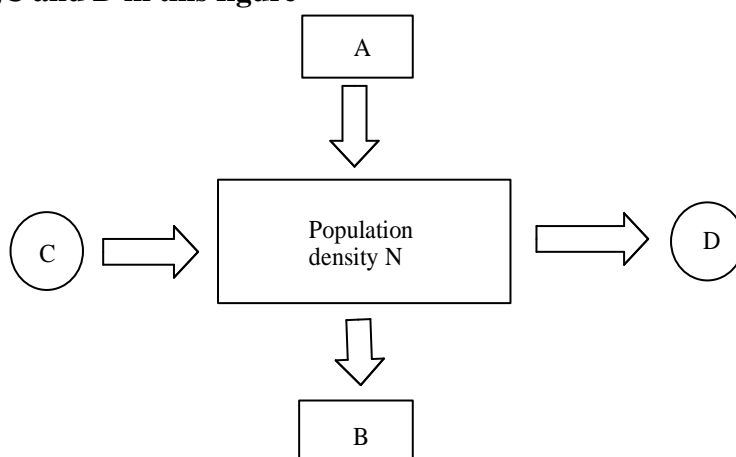
132. A colour blind man marries a woman with normal sight who has no history of color blindness in her family. What is the probability of their son being color blind?

- 1) 100%
- 2) 50%
- 3) nil
- 4) 25%

133. Dikaryotic phase is observed in \_\_\_\_\_

- 1) Phycomycetes and Ascomycetes
- 2) Phycomycetes and deuteromycetes
- 3) Ascomycetes and Basidiomycetes
- 4) Ascomycetes and deuteromycetes

134. Mother and father have children with 'O', 'A' 'B' and 'AB' blood group, respectively. What would be the genotype of both mother and father?  
 1) Mother is homozygous for 'A' blood group & father is heterozygous for B  
 2) Mother is heterozygous for 'A' blood group & father is homozygous for B  
 3) Both parents are heterozygous for 'A' and 'B' blood groups  
 4) Both parents are homozygous for 'A' and 'B' blood groups
135. Identify the mis-match  
 1) petunia-ornamental 2) lupin-ornamental 3) muliathi-ornamental 4) Tulip-ornamental
136. In population of 250 individuals in Hardy-weinberg equilibrium recessive and homozygous dominant individuals are 30% and 20% respectively. The frequency of recessive allele is  
 1) 0.45 2) 0.55 3) 0.48 4) 0.05
137. The fruit of mango differ from that coconut with respect to  
 1) mesocarp 2) endocarp 3) Drupe 4) single seeded
138. Identify the A,B,C and D in this figure



- 1) A-Natality, B-immigration, C-Mortality, D-Emigration  
 2) A- immigration, B-emmigration, C- Natality, D- Mortality  
 3) A- Mortality, B-emmigration, C- Natality, D- immigration  
 4) A- Mortality, B- Natality, C- emmigration, D- immigration
139. Identify the incorrect statement regarding secondary growth in dicot stem  
 1) lateral meristems contribute to secondary growth  
 2) cork cambium produces cork and secondary cortex  
 3) spring wood is lighter in color and has lower density  
 4) Bark constitutes wood and periderm
140. World summit on sustainable development was held in  
 1) Johannesburg, south Africa 2002 2) Rio De Janerio, 1992  
 3) Kyoto protocol- Japan 4) Montreal, Canada
141. In animal cells during cell cycle the centriole duplicates in the following phase  
 1)  $G_1$  2)  $G_2$  3) S 4) M
142. As we go higher from species to kingdom, the number of common characteristic goes on  
 1) Increasing 2) decreasing 3) remains same 4) none of the above
143. Root pressure  
 1) Is positive 2) is driving force for guttation  
 3) Is responsible for exudation 4) all the above correct
144. Which of these are examples of alien species invasion?  
 1) Nile perch introduced in Lake Victoria in east Africa  
 2) African cat fish in Indian River  
 3) water hyacinth in India 4) All of the above
145. Boron is not concerned with \_\_\_\_\_  
 1) carbohydrate translocation 2) uptake and utilization of  $Ca^{2+}$   
 3) pollengrain transfer 4) cell membrane functioning



162. The seminiferous tubules of the testis are lined by the germinal epithelium consisting of  
 1) Cells of Sertoli      2) Spermatocytes      3) Spermatogonium      4) Spermatids
163. In which of the following organisms m-RNA has introns  
 1) Nostoc      2) Rhizobium      3) Mycoplasma      4) Chlamydomonas
164. Ranikhet disease is found in  
 1) Honey bee      2) Hens      3) Fishes      4) Sericulture
165. The plant propagated through roots is  
 1) *Sweet potato*      2) *Jasmine*      3) *Allium*      4) All of the these
166. In an area where DDT had been used extensively used, the population of birds declined significantly because  
 1) Increased cobras were feeding exclusively on birds  
 2) many of the birds eggs laid, did not hatch  
 3) birds stopped laying eggs  
 4) Earthworms in the area got eradicated
167. How many structural genes are present in the lac operon of E.coli?  
 1) 4      2) 3      3) 5      4) 6
168. In an ecosystem the rate of production of organic matter during photosynthesis is termed as  
 1) Net productivity      2) Net primary productivity  
 3) Gross primary productivity      4) Secondary productivity
169. Caulogenesis is due to  
 1) more auxin than cytokinin      2) gibberellin  
 3) more cytokinin than auxin      4) abscisic acid
170. A biologist studied the population of rats in a barn. He found that average natality was 250, average mortality 240, immigration 25 and emigration 30; The net increase in population is  
 1) 15      2) 05      3) zero      4) 275
171. Thermocycler is used for  
 1) gene transfer      2) splicing of DNA      3) Gene cloning      4) Gene isolation
172. The Kangaroo rat in north American deserts is capable of meeting all its water requirements by/through the some of the following methods for water conservation. How many are true?  
 I) Ability to dilute its urine      II) Ability to concentrate its urine  
 III) Internal fat oxidation      IV) Increasing food intake  
 1) All are true      2) All are false      3) More than 2 are true      4) More than one is true
173. Meloidogyne incognitia causes a great reduction in yield of  
 1) Bean      2) Tobacco      3) Rice      4) Cotton
174. Which one of the following is not a function of an ecosystem  
 1) productivity      2) stratification      3) energy flow      4) decomposition
175. Incorrect match of the following  
 1) Coleopterons-beetles      2) Lepidopterans-mosquitos  
 3) Dipterans-flies      4) Lepidopterans-army worm
176. Stages of *Plasmodium vivax* which are small in size, large in number, and formed by the end of exoerythrocytic schizogony are  
 1) Macrometa cryptozoites      2) cryptozoites  
 3) micrometa cryptozoites      4) erythrocytic merozoites
177. Correct sequence of stages of succession in a pond  
 1) submerged plants → floating plants → reed swamp stage → sedges  
 2) floating plants → submerged plants → reed swamp stage → sedges  
 3) reed swamp stage → sedges → floating plants → submerged plants  
 4) sedges → reed swamp stage → floating plants → submerged plants
178. The larval stages of *Wuchereria* which can be seen in the female culex mosquito  
 I) micro filaria II) 1<sup>st</sup> stage micro filaria III) 2<sup>nd</sup> stage micro filaria IV) 3<sup>rd</sup> stage micro filaria  
 V) 4<sup>th</sup> stage micro filaria  
 1) I,II,III      2) II,III      3) II,III,IV      4) I,II,III,IV
179. What is the ploidy of embryo, endosperm, perisperm, and nucellus respectively?  
 1) 2n,3n,2n,2n      2) 2n,3n,3n,2n      3) 3n,2n,2n,3n      4) 2n,3n,2n,3n
180. Nicotine results in increased heart rate and blood pressure, by stimulating the release of  
 1) Vasopressin      2) adrenaline      3) insulin      4) thyroxine