

# PROF. ROHAN SHENOY'S **MOCK-TEST FOR MHT-CET BIOLOGY - 2011**

**Dear students,**

Guess its time to say *Alvida* and move-on into a more happening phase of life. But that's not without acknowledging your contribution in helping us grow by leaps and bounds.

What started in late 2007 as an experiment of an enthusiastic amateur young guy

**Rohan Shenoy** has clicked to present-day ROHAN SHENOY EDUSERVE and **Prof.**

**Rohan Shenoy's test-series for MHT-CET Biology. Our 2011 test-series has succeeded in attracting students from over 100 junior colleges in Maharashtra and the study material has received appreciation from all quarters. What can make me more happier?**

I would like to thank all students and parents who purchased our products and services and contributed to the financial success of this experiment, and also to those who extended help by spreading our name around. It was overwhelming and delightful to receive your help in all forms.

As a return gift, I present this mock-test in Biology for students appearing at MHT-CET 2011.

Thank you,

- Rohan J. Shenoy

[MOCK TEST NEXT PAGE ONWARDS]

101. **Which of the below mentioned statements are correct?**  
a) Osmotic potential of cell sap is greater than that of soil water  
b) Dry air outside a leaf has lower water potential than that of the leaf  
c) Cells of the pericycle do not show turgidity  
d) All the above are correct
102. **Genetic diseases can be transmitted to**  
a) Parents  
b) Sexual partner  
c) Grandchildren  
d) Fore-fathers
103. **The menix that appears like a spider web is**  
a) The thickest meninx  
b) Avascular  
c) In contact with CSF on both its sides  
d) In direct contact with nervous tissue
104. **Urochrome is a**  
a) Plasma protein  
b) Steroid hormone  
c) Product of platelets  
d) Bile pigment
105. **What happens to zona pellucida during morulation?**  
a) Persists throughout the process  
b) Degenerates due to acrosin or zona lysine  
c) Undergoes cleavage to surround each blastomer individually  
d) Accumulates yolk and glycogen
106. **Which natural hormone in its normal course of action reduces the fertility of a woman of child bearing age?**  
a) Thyroxine  
b) Prolactin  
c) FSH  
d) LH
107. **Used in estimation of blood haemoglobin level.**  
a) 0.001 N HCl  
b) 0.010 N HCl  
c) 0.100 N HCl  
d) 1.000 N HCl
108. **In plant tissue culture, colchicine is used for**  
a) Mutation breeding  
b) Somatic hybridization  
c) Production of androgenic haploids  
d) Both (a) and (c)
109. **Fish used for control of mosquitoes**  
a) Rohu  
b) Sardine  
c) Guppy  
d) Mackerel
110. **Blood flow to kidney is about**  
a) 1200 ml/min  
b) 125 ml/min  
c) 500 ml/min  
d) 12.5 ml/min
111. **Which of this provides immediate immunity?**

- a) Toxoid vaccines  
b) Killed vaccines
- c) Antiserum  
d) Attenuated vaccines
112. **Antigen O is present**  
a) On red cells of people whose blood group is neither A nor B  
b) On flagella of *Salmonellae*  
c) On thyroid follicles in Grave's disease  
d) None of the above
113. **WWW stands for**  
a) Word wide web  
b) Wide wire web  
c) World wide web  
d) Wild Western Wire network
114. **Endometrium grows in which phases of female reproductive cycle?**  
a) Menstrual, proliferative and secretory  
b) Proliferative and secretory  
c) Secretory and menstrual  
d) Menstrual and proliferative
115. **Which of these is INCORRECT about photosynthesis?**  
a) It is an anabolic process  
b) It occurs only in multicellular organisms  
c) Dark periods increase its efficiency  
d) Sugars, other than hexoses are formed in photosynthesis
116. **Find the arrangement that contains organs in ascending order of their respective lengths.**  
a) Spinal cord, vas deferens, urethra in male, fallopian tube, ureter  
b) Ureter, spinal cord, urethra in male, vas deferens, fallopian tube, ureter  
c) Spinal cord, ureter, urethra in male, fallopian tube, vas deferens  
d) Fallopian tube, urethra in male, ureter, vas deferens, spinal cord
117. **Measurement of blood pressure using a sphygmomanometer is a \_\_\_\_\_ process.**  
a) Physical  
b) Physiological  
c) Psychological  
d) Psychosocial
118. **The chief nitrogenous waste product of cartilagenous fish, alligators and turtles is**  
a) Ammonia  
b) Carbonyl diamine  
c) Xanthine tetraphosphate  
d) None of these
119. **Spinal cord emerges out of the skull through**  
a) Fossa ovalis  
b) Foramen of Monroe  
c) Fenestra ovalis  
d) Foramen Magnum
120. **In Ivan Pavlov's reflex-related experiment in dog, the effector organ was the**  
a) Salivary glands  
b) Internal ear(sound of bell)  
c) Olfactory epithelium(smell of food)  
d) Food

121. **In DNA replication, the strand which opens from 5'-3' is called as**
- |                     |                   |
|---------------------|-------------------|
| a) Lagging template | c) Leading strand |
| b) Leading template | d) Okazaki strand |
122. **Type of pollination NOT POSSIBLE in unisexual flowers**
- |                |                  |
|----------------|------------------|
| a) Autogamy    | c) Xenogamy      |
| b) Geitonogamy | d) Hybridization |
123. **Which part of the HIV virus is derived from its victim?**
- |        |                          |
|--------|--------------------------|
| a) P24 | c) Bilipid layer         |
| b) P18 | d) Reverse transcriptase |
124. **What is the use of enzyme in ELISA technique?**
- |                                      |                                 |
|--------------------------------------|---------------------------------|
| a) Promote antigen antibody reaction | c) Conjugation of antigen       |
| b) Formation of color                | d) Immobilization of substrates |
125. **Organ of vegetative propagation in *Cynodon***
- |                                       |                      |
|---------------------------------------|----------------------|
| a) Parthenogenic fruit (parthenocarp) | c) Rubber            |
| b) Thin wiry Roots                    | d) Sub aerial Branch |
126. **In cabbage, sudden elongation of stem indicates that**
- |  |
|--|
| a) Fruits have become ripe and suitable for plucking |
| b) Plant will die shortly                            |
| c) All flowers of the plant have been fertilized     |
| d) Plant will shortly flower                         |
127. **Vision is adversely affected by**
- |                       |                 |
|-----------------------|-----------------|
| a) Nicotine addiction | c) Alcohol      |
| b) Amphetamines       | d) All of these |
128. ***Wuchereria bancrofti* is the cause of**
- |              |                  |
|--------------|------------------|
| a) Plague    | c) Kala azar     |
| b) Dysentery | d) Elephantiasis |
129. **The cells that are thought to provide nourishment to the ovum are known as**
- |                  |                 |
|------------------|-----------------|
| a) Sertoli cells | c) Paneth cells |
| b) Peg cells     | d) Clara cells  |
130. **Okazaki fragments are synthesized from**
- |   |   |
|---|---|
| a) Leading strand                       | c) Lagging strand in 3' to 5' direction |
| b) Lagging strand in 5' to 3' direction | d) Deoxyribose nucleotides              |
131. **Blood cells that help in transport of respiratory gases**
- |                 |                      |
|-----------------|----------------------|
| a) Erythrocytes | c) Plasma            |
| b) Leucocytes   | d) Haemoglobinocytes |

132. **Antibodies are produced at**
- a) Site of pathogenic invasion  
b) Lymph nodes  
c) Spleen and thymus  
d) None of these
133. **Auxins used to prevent premature fruit drop are**
- a) NAA and 2,4-D  
b) NAA, 2,4-D and IBA  
c) NAA, IBA and IAA  
d) All of these
134. **Site of bursting of pollen tube in the process of fertilization**
- a) Inside embryosac  
b) Outside embryosac  
c) On stigma  
d) Inside pollen grain
135. **Sertoli cells are**
- a) Intrafollicular  
b) Interstitial  
c) Intratubular  
d) Both (a) and (c)
136. **Mesorchium is represented by**
- a) Tunica vaginalis  
b) Gubernaculum  
c) Tunica vasculosa  
d) Inguinal ligament
137. **Which sea wood is a source of iodine?**
- a) Rhodomela and Polysiphonia  
b) Fucus and Laminaria  
c) Chondrus and Gigartina  
d) Gelidium and Geliadiella
138. **Pregnancy may be discovered by**
- a) HCG-based urine pregnancy test  
b) Ultrasonography of pelvic organs  
c) Absence of menstruation on expected dates  
d) All of the above
139. **Withdrawal symptoms of alcohol are known as**
- a) Delirium tremens  
b) AI baker's syndrome  
c) Rick-Rack sign  
d) SSRI discontinuation syndrome
140. **Body weight of patient increases in**
- a) Grave's disease  
b) Slim disease  
c) Gull's disease  
d) Cancer
141. **Genetically modified fungus used in bio-control of plant diseases and pests**
- a) Neurospora  
b) Claviceps  
c) Trichoderma  
d) Agaricus
142. **A given DNA fragment contains 18% G bases. If it replicates, what be the amount of C bases in its daughter DNA fragments.**

- a) 18% in both  
b) 18% in one and 32% in other
- c) 32% in both  
d) 25% in both
143. **The bird Great Indian Bustard is classified as \_\_\_\_\_ in IUCN's Red Data Book.**  
a) E  
b) V  
c) R  
d) I
144. **Choose the event of shortest duration**  
a) Atrial diastole  
b) Atrial systole  
c) Ventricular systole  
d) Ventricular diastole
145. **An intermediate compound in Kreb's cycle that is formed as a result of decarboxylation and itself undergoes decarboxylation as well**  
a)  $\alpha$ -KGA  
b) Oxalosuccinate  
c) Malate  
d) Oxaloacetate
146. **Round spherical nucleus is a feature of**  
a) Monocyte  
b) Basophils  
c) Neutrophils  
d) Lymphocytes
147. **Which of these can cause haemolytic disease of the newborn(HDN)?**  
a) Rh incompatibility  
b) ABO incompatibility  
c) Both 'a' and 'b'  
d) Neither 'a' nor 'b'
148. **Lions in India are now found in**  
a) Gir forests  
b) Forest of M.P.  
c) Forests of Western Ghats  
d) Jim Corbett N.P
149. **The bonds that are responsible for strand formation in RNA**  
a) Peptide linkage  
b) Phosphodiester linkage  
c) Glycosidic bonds  
d) Hydrogen bonds
150. **The latin word that means *outside***  
a) Forestis  
b) Immunis  
c) Afforestis  
d) Deforestis
151. **What is casing ?**  
a) Covering of compost by a layer of soil  
b) Arrangement of compost into rows  
c) Plucking of fruting bodies  
d) Mixing of spawn with compost
152. **The mobile electron carrier is**  
a) Chl. a  
b) Plastocyanin  
c) Ferredoxin  
d) NADP

153. **Choose the agranulocyte from the below**

- a) Neutrophil
- b) Acidophil
- c) Basophil
- d) Monocyte

154. **Indole-3 pyruvic acid is**

- a) Natural auxin
- b) Synthetic auxin
- c) Intermediate in aerobic type of EMP pathway
- d) Intermediate in EMP pathway that occurs apical meristems

155. **When the average heart rate over 30 mins is 60 beats per minute and the stroke volume is 65 ml, the cardiac output can be calculated as**

- a)  $60 \times 65$
- b)  $30 \times 65$
- c)  $(60/30) + 65$
- d)  $60 - 30 + 65$

156. **The control point for distribution of blood to various body parts is**

- a) Arteries
- b) Arterioles
- c) Veins
- d) Capillaries

157. **Suspension of growth of a mature embryo due to environmental factors such as light and temperature is called as**

- a) Germination
- b) Quiescence
- c) Dormancy
- d) None of the above

158. **Vinyl Chloride(VCM) and aflatoxin have been implicated in the cancer of**

- a) Prostate
- b) Liver
- c) Urinary bladder
- d) Bone marrow

159. **Substrate level phosphorylation is brought about by the enzymes**

- a) Phosphoglycerokinase, enolase, succinic thiokinase
- b) Phosphofructokinase, phosphoglycerokinase, hexokinase
- c) Succinic thiokinase, pyruvate kinase, phosphoglycerokinase
- d) Succinic thiokinase, phosphofructokinase, phosphoglycerokinase

160. **Chimeric DNA contains DNA from**

- a) Vector DNA and target DNA
- b) Vector DNA and host DNA
- c) Target DNA and host DNA
- d) Host DNA only

161. **Bio-oxidation of food is NOT SEEN in**

- a) EMP pathway
- b) Intra-cellular lactic acid formation
- c) Calvin cycle
- d) Vermicomposting

162. **The organic acid that helps in opening of stomata**

- a) Pyruvic acid
- b) Oxalo acetic acid
- c) Succinic acid
- d) Malic acid

163. **A medicinal plant that is better avoided in pregnant women is**
- a) Aloe  
b) Vasaka  
c) Tulsi  
d) Shatavari
164. **Which of these is FALSE about thyroid gland?**
- a) Follicular lining is columnar in an overactive gland  
b) Its hormones are stored extracellularly  
c) It is ectodermal in origin  
d) The inner free margins of follicular cells have microvilli
165. **Etiolation occurs when**
- a) Plants are grown in dark  
b) Plants are treated with kalium pesticide  
c) Plants are grown without sulphur  
d) Plants are exposed to gamma rays
166. **The ratio of  $\text{NADH}_2$ : $\text{FADH}_2$  formed in complete oxidation of glucose is**
- a) 10:1  
b) 5:1  
c) 11:1  
d) 6:1
167. **Which of these is NOT wrong?**
- a) Extra-embryonic mesoderm does not give rise to any tissue  
b) Retina of the eyes develop from endoderm  
c) Ectoderm and mesoderm form the embryonic disc  
d) None of these(all the above ones are correct)
168. **Corpus albicans is formed \_\_\_\_ days before the end of menstrual cycle.**
- a) 2-3  
b) 5-6  
c) 10-12  
d) 8-10
169. **The outer surface of duramater around brain is**
- a) Smearred with CSF  
b) Attached to inner surface of cranium  
c) Coated with clotted blood  
d) Coated with fibrin
170. **Site of regeneration of NADP**
- a) Stroma of chloroplast  
b) Thylakoid of chloroplast  
c) Matrix of mitochondria  
d) Periplastidial space
171. **Neurotoxic bioweapon from cyanobacteria**
- a) Botulinum  
b) Ricin  
c) Trichothecenes  
d) Saxitaxin
172. **Which one of these is NOT a temporary endocrine gland?**
- a) Breasts showing galactogenesis  
b) Corpus luteum  
c) Uterine glands in endometrium  
d) None of the above
173. **An increase in the no. of well differentiated white blood cells is called**

- a) Lymphoma  
b) Leukemia
- c) Leucocytosis  
d) Leucopenia
174. **During ventricular systole, backflow of blood INTO THE LEFT VENTRICLE is prevented by**
- a) Bicuspid valve  
b) Semilunar valve
- c) Ventricular muscle contraction  
d) Ventricular muscle relaxation
175. **Connecting link between reverse glycolysis and photosynthesis is**
- a) Pyruvic acid  
b) Phosphoglyceric acid
- c) Acetyl co-A  
d) ATP
176. **Translocation of water in a tall plant will be maximally reduced by**
- a) Cutting off all its roots from the stem  
b) Plucking off all the leaves
- c) Putting the plant in shade  
d) Plucking all the fruits and flowers
177. **Formation of corpus albicans indicates that**
- a) Graafian follicle did not rupture  
b) Fertilization did not occur  
c) The female is pregnant  
d) Baby can be delivered normally without complications
178. **Transpiration occurs through**
- a) Fruits and flowers  
b) Leaves
- c) Stem  
d) All of the above
179. **Pregnancy is maintained by the hormone**
- a) Oxytocin  
b) Estrogen
- c) Progesterone  
d) Prolactin
180. **Renal artery is a branch of**
- a) Dorsal aorta  
b) Thoracic duct
- c) Postcaval vessel  
d) Renal portal system
181. **The confirmatory test for typhoid is**
- a) Widal  
b) Manteux
- c) ELISA  
d) Western blot
182. **Which one of the following blood vessels in mammals carries the least amount of urea ?**
- a) Pulmonary vein  
b) Hepatic artery
- c) Hepatic portal vein  
d) Renal vein
183. **Which of these hormones are NOT derivatives of single amino acids?**
- a) Thyroxin  
b) Adrenaline
- c) Oxytocin  
d) Nor-adrenaline

184. **Example of correct way of defining a population**
- a) Population of dogs in Mumbai in year 2000 - 2005 was 0.1 million
  - b) Population of *Homo sapiens* in Latur is 1 million
  - c) Population of cows was 0.25 million in year 1990 - 2000
  - d) Both (a) and (c)
185. **Motor performance is not affected in**
- a) Influence of alcohol
  - b) Gigantism
  - c) Spinal cord injury
  - d) AIDS dementia complex
186. **Presence of typhoid bacilli in blood can be detected by**
- a) Culture of blood
  - b) Pap test
  - c) Widal test
  - d) Salmonel test
187. **Mucosal layer of the uterus is known as**
- a) Epimetrium
  - b) Perimetrium
  - c) Myometrium
  - d) Endometrium
188. **Adaptations for wind pollination are**
- a) Versatile anthers and winged pollens
  - b) Branched and feathery stigma
  - c) Leaves are dropped near time of pollination
  - d) All of these
189. **Which of the following is NOT a viral disease ?**
- a) Measles
  - b) Mumps
  - c) Chickenpox and small pox
  - d) Plague
190. **In a person whose blood group is A+ve, anti-B antibodies appear due to**
- a) Microbial flora in GIT
  - b) Contact with incompatibel blood during labour
  - c) Rh incompatibility
  - d) None of these
191. **Minimum and maximum values of vital index are**
- a) 0 and 1
  - b) 0 and 100
  - c) 1% and 100%
  - d) Both values are undefinable
192. **New characters can be introduced without the use of recombinant DNA technology by**
- a) Sexual reproduction
  - b) Somatic hybridization
  - c) Addition of colchicine to plant tissue culture medium
  - d) All of the above
193. **Important benefits of BGA/cyanobacteria are**

- a) Increases potassium availability  
b) Increases phosphorous availability
- c) Lowers pH of soil  
d) All of these
194. **Para follicular cells of thyroid are also known as**
- a) Alpha cells  
b) Gamma cells
- c) Beta cells  
d) C-cells
195. **The phenomenon of germination of seeds inside the fruit itself while the fruit still being attached to the parent plant is known as**
- a) Dormancy  
b) Vivipary
- c) Hypogeal germination  
d) Epigeal germination
196. **In SDP and LDP angiosperms, exposure to proper photoperiod is absolutely necessary for**
- a) Overcoming dormancy  
b) Flowering
- c) Photosynthesis  
d) Both (b) and (a)
197. **Site of nitrogen fixation in *Rhizobia* infected leguminous plants is**
- a) Lower leaves  
b) Apical stem
- c) Root nodules  
d) Root hair
198. **The sugar in nucleotide molecule is linked to carbon \_\_\_\_ of nitrogen base.**
- a) N-1 of pyrimidine and N-9 of purine  
b) N-9 of pyrimidine and N-1 of purine
- c) N-1 of purines/pyrimidines  
d) N-9 of purines/pyrimidines
199. **Leaf juice of *Aloe vera* mixed with opium serves to relieve**
- a) Dysentry  
b) Headache
- c) Constipation  
d) Flatulence
200. **The enzyme that catalyzes link reaction between photolysis and Krebs's cycle**
- a) Pyruvic kinase  
b) Pyruvic decarboxylase
- c) Pyruvic dehydrogenase  
d) Pyruvic oxidase

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## ANSWER KEY TABLE

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[101 = d] [102 = c] [103 = c] [104 = d] [105 = a] [106 = b] [107 = c] [108 = a] [109 = c] [110 = a]  
[111 = c] [112 = d] [113 = c] [114 = b] [115 = b] [116 = d] [117 = a] [118 = b] [119 = d] [120 = a]  
[121 = a] [122 = a] [123 = c] [124 = b] [125 = d] [126 = d] [127 = d] [128 = d] [129 = b] [130 = d]  
[131 = a] [132 = b] [133 = a] [134 = a] [135 = c] [136 = b] [137 = b] [138 = d] [139 = a] [140 = c]  
[141 = c] [142 = a] [143 = c] [144 = b] [145 = a] [146 = d] [147 = a] [148 = a] [149 = b] [150 = a]  
[151 = a] [152 = b] [153 = d] [154 = a] [155 = a] [156 = b] [157 = d] [158 = b] [159 = c] [160 = a]  
[161 = c] [162 = d] [163 = a] [164 = c] [165 = a] [166 = b] [167 = a] [168 = a] [169 = b] [170 = a]  
[171 = d] [172 = a] [173 = c] [174 = c] [175 = b] [176 = b] [177 = b] [178 = d] [179 = c] [180 = a]  
[181 = a] [182 = d] [183 = c] [184 = a] [185 = b] [186 = a] [187 = d] [188 = d] [189 = d] [190 = a]  
[191 = d] [192 = d] [193 = d] [194 = d] [195 = b] [196 = b] [197 = c] [198 = a] [199 = b] [200 = c]

PROF. ROHAN SHENOY for Biology

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## ANSWER KEYS AND EXPLANATIONS

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101. **Which of the below mentioned statements are correct?**

Ans: d) All the above are correct

Osmotic potential of cell sap is greater than that of soil water due to continued metabolic activities of the root. Dry air outside has a lower water potential than that of mesophyll cells. As the air becomes humid, its water potential reduces and causes reduction in rate of transpiration. Cells of the pericycle do not become turgid because their cell walls are inelastic.

102. **Genetic diseases can be transmitted to**

Ans: c) Grandchildren

- Genetic diseases can be transmitted by inheritance of mutated genetic information.
- Children, grandchildren and their future generations are likely to receive the mutated genes.
- Whether such offsprings will actually develop the disease depends upon dominance or recessiveness of the mutated gene.
- The mutated gene can reside either on the autosomes or sex chromosomes.

103. **The menix that appears like a spider web is**

Ans: c) In contact with CSF on both its sides

The middle meninx resembles the web of a spider and hence it is called as "arachnoid membrane". It is net-like (reticular) and vascular (contains blood vessels). It is surrounded by sub-dural space on one side and sub-arachnoid space on the other; both of these spaces contain CSF.

104. **Urochrome is a**

Ans: d) Bile pigment

Urochrome is derived from bile pigments and is produced in the **liver**. It is responsible for yellow color of the urine.

105. **What happens to zona pellucida during morulation?**

Ans: a) Persists throughout the process

During morulation:

- The embryo continues to traverse the lumen of the fallopian tube due to ciliary beating of innermost layer of fallopian tube and its peristaltic movements.
- Zona pellucida persists throughout, and disintegrates only after the embryo has reached the uterine cavity.
- The total size of the embryo remains the same. Instead, the blastomeres formed during successive divisions become smaller in size. For this reason, the process of cleavage is also called as **fractionation** or **fractionating process**.

106. **Which natural hormone in its normal course of action reduces the fertility of a woman of child bearing age?**

Ans: b) Prolactin

Prolactin causes temporary suspension of ovarian cycle and menstruation. Hence, lactation or breast-feeding provides natural protection against pregnancy.

107. **Used in estimation of blood haemoglobin level.**

Ans: c) 0.100 N HCl

- Hint: Remember it as one-tenth Normal
- Only HCl can be used. Other ones such as sulphuric acid, nitric acid, etc. **cannot** be used.
- Function of HCl is to bring about conversion of haemoglobin into brown colored substance called as **acid haematin**.

108. **In plant tissue culture, colchicine is used for**

Ans: a) Mutation breeding

Colchicine is **not** used to produce androgenic haploids. It is used to double the chromosome number of androgenic haploids and create homozygous or pure line plants.

109. **Fish used for control of mosquitoes**

Ans: c) Guppy

Guppy fish(*Poecilia reticulata*)/gambusia eat the larvae of the mosquitos and thus prevents multiplication of mosquitos. This helps to curb the problem of malaria to some extent.

It is most economical to release these fishes during rainy season as stagnating water serves as breeding site for the mosquitos.

Other larvicidal fishes: Aplocheilus, Barbus, Puntis, Trichogaster, top minnows, etc.

Option A: Rohu(Labeo) is used as a representative in anatomical studies.

110. **Blood flow to kidney is about**

Ans: a) 1200 ml/min

Both the kidneys together receive about 23-24% of the cardiac output (normally, cardiac output is 5 lit/min). Thus, kidneys receive about 1200 ml/min.

111. **Which of this provides immediate immunity?**

Ans: c) Antiserum

Antiserum contains antibodies which provide quick protection against a pathogen. Eg: Anti-venom. On the other hand, vaccines containing toxoids(**anatoxins**), killed or live pathogens need some time to be processed by the immune system(**active immunity**).

112. **Antigen O is present**

Ans: d) None of the above

The substance O and antigens A and B should not be confused with those present on Salmonella. Their names are similar, but the molecules are not.

In the ABO blood group system, only A and B are said to be antigens. O is not an antigen(as it does not evoke immune response) and hence called as merely substance O. Hence, it is incorrect to refer to it as antigen O.

Antigen O is present on cell wall of *Salmonellae*.

113. **WWW stands for**

Ans: c) World wide web

- WWW is also called as Internet.
- It is a type of wide area network.
- The computers participating in this are called as servers and clients.
- The client computers find information from the servers using URL(Uniform Resource Locator).

114. **Endometrium grows in which phases of female reproductive cycle?**

Ans: b) Proliferative and secretory

After endometrium has been broken down and shed in menstrual phase, endometrial repair starts in the proliferative phase under influence of estrogen and continues through secretory phase.

115. **Which of these is INCORRECT about photosynthesis?**

Ans: b) It occurs only in multicellular organisms

- Photosynthesis is an anabolic process
- Photosynthesis occurs even in unicellular organisms such as some unicellular algae (Eg: *Chlamydomonas*)
- Dark periods increase the efficiency by increasing availability of cofactors such as NADPH.
- Other than hexose sugars, triose, heptose, etc. are also formed as intermediates

116. **Find the arrangement that contains organs in ascending order of their respective lengths.**

Ans: d) Fallopian tube, urethra in male, ureter, vas deferens, spinal cord

Lengths of respective organs are:

- Nephron when uncoiled = 4 - 6 cms
- Fallopian tube = 10 - 12 cms
- Urethra in male = 20 cms (in females only 4 cms)
- Ureters = 25 cms
- Vas deferens = 40 cm
- Spinal cord = 42 - 45 cm
- Epididymis = **6 meters** when **uncoiled**

117. **Measurement of blood pressure using a sphygmomanometer is a \_\_\_\_\_ process.**

Ans: a) Physical

Sphygmomanometer measures blood pressure by manipulating the pressure against the arterial blood pressure. It is a physical process based upon balancing the forces.

118. **The chief nitrogenous waste product of cartilaginous fish, alligators and turtles is**

Ans: b) Carbonyl diamine

Carbonyl diamine = urea ( $H_2N.CO.NH_2$ ). The excretory product of **cartilaginous** fish, reptiles such as alligators and turtles is urea.

Note: The excretory product of **bony** fish is ammonia and **trimethylamine oxide** (TMAO).

119. **Spinal cord emerges out of the skull through**

Ans: d) Foramen Magnum

1. Fossa ovalis (meaning: an depression that is oval in shape) is present in skull as well as the heart. In the human heart, it is found in the atrial septum and is a remnant of foramen ovale which closes after birth.
2. Foramen of Monroe is present in the brain and is the common opening between lateral ventricles (I and II of cerebral hemispheres) and III (third ventricle) of diencephalon
3. Foramen magnum is present at the base of skull through which medulla oblongata and spinal cord exit. It is the largest foramen in the skull.

120. **In Ivan Pavlov's reflex-related experiment in dog, the effector organ was the**

Ans: a) Salivary glands

In Ivan Pavlov's experiment,

- Natural stimuli to which the dog salivated = sight and smell of the food.
- Stimuli to which the dog was conditioned = sound of the bell, **in the absence of sight or smell of the food.**
- Motor response = salivation (meaning: secretion of saliva by the salivary glands) Salivation on ringing the bell was a conditioned reflex. It may disappear if the food is withheld repeatedly on many occasions after ringing the food. It may also reappear if the experiment is repeated.

121. **In DNA replication, the strand which opens from 5`-3` is called as**

Ans: a) Lagging template

122. **Type of pollination NOT POSSIBLE in unisexual flowers**

Ans: a) Autogamy

In unisexual flowers, one of the sexual whorl is absent. Therefore, only one type of gamete - male or female is produced. Hence, autogamy is impossible.

123. **Which part of the HIV virus is derived from its victim?**

Ans: c) Bilipid layer

- The bi-lipid layer around the virus is host-derived (meaning: it is derived from the cells that it attacks. Ex: helper T cells, macrophages, etc.).
- The enzyme reverse transcriptase is the characteristic feature of retroviruses.

124. **What is the use of enzyme in ELISA technique?**

Ans: b) Formation of color

Enzymes such as peroxidases and alkaline phosphatase are linked to antibodies. When substrates such as 5-amino salicylic acid or o - phenyldiamine are added to it, the enzyme brings about their conversion into coloured products which may be read by the human eye or machines such as spectrophotometer.

125. **Organ of vegetative propagation in *Cynodon***

Ans: d) Sub aerial Branch

- The runner is a slender, prostrate, **sub aerial branch** that creeps horizontally on the soil.
- It has nodes separated by long internodes.
- The nodes give rise to roots on their lower side (the side facing the ground) and shoots on the upper or sky-facing side. The roots are thus **adventitious roots** (meaning: adventitious roots are those that do not arise from the radicle).

Note on **parthenogenic fruit**.

1. Parthenogenic fruit is a fruit that is formed without fertilization. That is, the ovary develops into fruit without fertilization having occurred. Hence, such a fruit is also called as virgin fruit.
2. Such a fruit is seedless.
3. Naturally, it occurs in banana.
4. Auxins like IAA, IBA and 2,4 - D induce parthenocarpy in plants like brinjal, grape, tomato etc.
5. Gibberellins are more effective than auxins in inducing parthenocarpy, especially in plants like tomato, apple, pear, cucumber, etc.
6. Cytokinins induce parthenocarpy in figs.

126. **In cabbage, sudden elongation of stem indicates that**

Ans: d) Plant will shortly flower

In cabbage and other rosette-forming plants, sudden elongation of stem due to growth of internodes occurs just before the plant is above to flower. Such a sudden elongation of stem is called as **bolting**. It can be brought about by application of **gibberellins** especially when photo-period requirements are not met.

127. **Vision is adversely affected by**

Ans: d) All of these

- Nicotine addiction leads to amblyopia - a condition in which the field of vision is narrowed.
- Amphetamines cause dilated pupil and blurred vision.
- Alcohol causes blurred vision(**tunnel vision**).

128. **Wuchereria bancrofti is the cause of**

Ans: d) Elephantiasis

- Plague is caused by Yersinia pestis
- Dysentery is caused by ameoba or Shigella
- kala azar is caused by Leishmania donovani
- Elephantiasis is caused by Wuchereria bancrofti and Brugia malayi

129. **The cells that are thought to provide nourishment to the ovum are known as**

Ans: b) Peg cells

1. Peg cells are the non-ciliated cells lining the fallopian tube. They are thought to provide nourishment of the ovum and zygote while traversing through the lumen of the fallopian tube.
2. Clara cells are the tissue macrophages(fixed macrophages or histiocytes) that reside in the alveoli of the lungs. They help in immunity system.

130. **Okazaki fragments are synthesized from**

Ans: d) Deoxyribose nucleotides

- Okazaki fragments are not synthesized **from** lagging strand.
- Lagging strand is synthesized from Okazaki strands.

Important note on polarity:

The synthesis of leading as well as the lagging strand starts at 5' end of itself(or 3' end of template strand). The 5' end is stationary and made up of RNA primer. Elongation of the daughter strands occurs by addition of DNA nucleotides to the 3' end of it. Thus, 3' end of the strand is the growing end.

131. **Blood cells that help in transport of respiratory gases**

Ans: a) Erythrocytes

97% of the total oxygen; And 93% of the CO<sub>2</sub> is transported through erythrocytes or RBC. Rest of the part is transported by dissolving in plasma(physical solution).

132. **Antibodies are produced at**

Ans: b) Lymph nodes

Antibodies are produced by plasma/effector cells at **lymph nodes**. They are then secreted into the lymph and then reach the circulation.

133. **Auxins used to prevent premature fruit drop are**

Ans: a) NAA and 2,4-D

1. Prevention of premature fruit drop: NAA and 2,4-D

2. Prevention of premature leaf drop: IAA

134. **Site of bursting of pollen tube in the process of fertilization**

Ans: a) Inside embryo sac

The pollen tube enters the embryo sac under chemical-mediated guidance from synergids(chemotaxis), absorbs water to swell and burst.

135. **Sertoli cells are**

Ans: c) Intratubular

- Sertoli cells are the large pyramidal cells interrupting between the germinal epithelium of seminiferous tubules.
- They are nutritive in function. Hence, also called as nurse cell of testis.
- It also provides structural support to the seminiferous tubules. Hence, also called sustentacular cell of testis.
- They release the hormone inhibin, which causes reduced secretion of FSH from anterior pituitary.

136. **Mesorchium is represented by**

Ans: b) Gubernaculum

Mesorchium is the peritoneum of testis which is represented by gubernaculum.

137. **Which sea wood is a source of iodine?**

Ans: b) Fucus and Laminaria

- Red-algae Rhodomela and Polysiphonia are marine sources of bromine.
- Brown-algae Fucus, Laminaria, Alaria are marine sources of iodine
- Chondrus and Gigartina are sources of **carrageenin** which is used in preparation of emulsions such as tooth paste, shaving creams, ice creams, etc.
- Red algae Gelidium, Gelidiella and Gracilaria are sources of **agar**. Agar is used as culture medium and thickener in food items.
- Phycocolloids(Algin) is used for preparing surgical threads, security glass, and taking dental impressions.
- Diatomite is the siliceous skeleton from diatoms used for sound-proofing.

138. **Pregnancy may be discovered by**

Ans: d) All of the above

139. **Withdrawal symptoms of alcohol are known as**

Ans: a) Delirium tremens

- Delirium tremens(DT) occurs in a minority of people who abstain from alcohol after habitual drinking.
- Symptoms include confusion, tremors, agitations, hallucinations, seizures, etc.
- DT may be fatal if not treated promptly.
- Treatment includes sedation and hypnosis by use of benzodiazepines(BZDs).

140. **Body weight of patient increases in**

Ans: c) Gull's disease

Body weight also increased in hypersecretion of TSH.  
Patient loses body weight in (apart from above mentioned ones):  
- Untreated typhoid  
- Hypersecretion of TSH

141. **Genetically modified fungus used in bio-control of plant diseases and pests**

Ans: c) Trichoderma

142. **A given DNA fragment contains 18% G bases. If it replicates, what be the amount of C bases in its daughter DNA fragments.**

Ans: a) 18% in both

In DNA, cytosine bases pair only with guanine bases. Thus, the amount of C and G are always equal in any given DNA strand. When the DNA replicates, the newly synthesized DNA strands are identical to the original DNA. They contain the bases in same proportion. Thus, if the given DNA fragment has 18% G bases, the newly synthesized DNA will also have 18% G bases.

143. **The bird Great Indian Bustard is classified as \_\_\_\_\_ in IUCN's Red Data Book.**

Ans: c) R

As per IUCN's Red Data Book, endangered species of plants and animals are classified as:

- E = Endangered species. Ex: Asiatic wild ass, Psilotum nudum, Osmunda regalis
- V = Vulnerable species, or also called as **Depleted Species**. Ex: Couped leopard, mush deerr (Antelope), Ophioglossum pendulum
- R = Rare species. Ex: Great Indian Bustard (a bird from Gujarat and Rajasthan), and Black buck (Kalveet)
- I = Indeterminate species. Ex: Three-banded armadillo of Brazil, short-eared rabbit of Sumatra, Rhinoceros, etc.

144. **Choose the event of shortest duration**

Ans: b) Atrial systole

- Atrial diastole = 0.7 sec
- Atrial systole = 0.1 sec
- Ventricular systole = 0.3 sec
- Ventricular diastole = 0.5 sec

145. **An intermediate compound in Krebs's cycle that is formed as a result of decarboxylation and itself undergoes decarboxylation as well**

Ans: a)  $\alpha$ -KGA

5C  $\alpha$ -KGA is formed by decarboxylation of 6C oxalosuccinate and itself undergoes decarboxylation to form 4C succinyl co-A.  $\alpha$ -KGA is the only intermediate in Krebs's cycle to have 5C.

146. **Round spherical nucleus is a feature of**

Ans: d) Lymphocytes

- Monocyte = Kidney shaped nucleus, also called saddle-shaped nucleus.
  - Basophils = Twisted nucleus
  - Neutrophils = Multi-lobed nucleus with beaded appearance
  - Eosinophils = Bi-lobed nucleus
  - R.B.C. and platelets = Nucleus is absent
- Note: Platelets are cytoplasmic fragments of larger cells known as megakaryocytes. Megakaryocytes are found in the bone marrow. They have nucleus.

147. **Which of these can cause haemolytic disease of the newborn(HDN)?**

Ans: a) Rh incompatibility

HDN is due to **Rh incompatibility**. Even if ABO incompatibility exists, the anti-A and anti-B antibodies formed are of IgM type which cannot cross the placenta.

Note: HDN is also an example of antibody mediated autotoxicity(Type II hypersensitivity)

148. **Lions in India are now found in**

Ans: a) Gir forests

The Gir Forest National Park and Wildlife Sanctuary is the only Indian place that plays host to the pure asiatic lions(*Panthera leo persica*). The Asiatic lions and other endangered fauna are supported by the Gir Lion Sanctuary Project(1972) which is funded by the World Wide Fund for Nature(WWF).

Other projects funded by the WWF are:

- Project Tiger(1973) to protect endangered Indian tiger(*Panthera tigris*)
- Crocodile Breeding Project(1975) to protect crocodile species:1. *Crocodylus porosus*(salt water crocodile), 2. *Corcodylus palustris*(Muggor), 3. *Garialis gangeticus*(Ghariyal)
- Project Hangul(1970) in Dachigam sanctuary(J and K) to protect the endangered Cervus elephus(Hungulu)

149. **The bonds that are responsible for strand formation in RNA**

Ans: b) Phosphodiester linkage

Phosphodiester linkages form the backbone of nucleotide strands. The phosphate group of a nucleotide attached at 5<sup>th</sup> carbon gets linked with 3<sup>rd</sup> carbon of the previous nucleotide. Its is a 5' - 3' bond.

The phosphodiester bond is formed between phosphates and carbon atoms of the **pentose sugars**.

The phosphate that participates in the bond formation is contributed by **phosphoric acid**.

150. **The latin word that means *outside***

Ans: a) Forestis

151. **What is casing ?**

Ans: a) Covering of compost by a layer of soil

152. **The mobile electron carrier is**

Ans: b) Plastocyanin

Plastocyanin and plastoquinone are mobile electron carriers in PS.

153. **Choose the agranuloctye from the below**

Ans: d) Monocyte

1. Monocytes and lymphocytes are the leucocytes which do not show any granules.
2. The granules of neutrophils are **stained by both** acidic as well as basic dyes.
3. Granules of acidophils are stained only by acidic dyes. Similar is true for basophils.

154. **Indole-3 pyruvic acid is**

Ans: a) Natural auxin

Other examples of natural auxins:

1. Indole-3 acetic acid(IAA)
2. Indole-3 acetaldehyde
3. Indole ethanol.

155. **When the average heart rate over 30 mins is 60 beats per minute and the stroke volume is 65 ml, the cardiac output can be calculated as**

Ans: a)  $60 \times 65$

Cardiac output = Heart rate  $\times$  stroke volume

156. **The control point for distribution of blood to various body parts is**

Ans: b) Arterioles

Arterioles acts as control points for distribution whereas arteries act as reservoir of pressure when the ventricles are relaxing.

157. **Suspension of growth of a mature embryo due to environmental factors such as light and temperature is called as**

Ans: d) None of the above

Quiescence and dormancy are states of suspended growth in an **immature** embryo. These states are followed by the process of germination where the immature embryo becomes mature.

158. **Vinyl Chloride(VCM) and aflatoxin have been implicated in the cancer of**

Ans: b) Liver

1. Lung cancer: Benzopyrene, soot, **n-nitro-sodimethylene of cigarette smoke**, nickel, chromium, etc.
2. Prostate cancer: Cadmium oxide
3. Liver cancer: Vinyl chloride and aflatoxin
4. Urinary bladder: 2-Naphthylamin and 4 aminobiphenyl
5. Bone marrow: Benzene

159. **Substrate level phosphorylation is brought about by the enzymes**

Ans: c) Succinic thiokinase, pyruvate kinase, phosphoglycerokinase

Substrate level phosphorylation is the formation of ATP from ADP and inorganic phosphate without involvement of ETS. In aerobic oxidation of glucose, the following three instances are encountered:

- Phosphoglycerokinase - converts of 1,3-diPGA into 3-PGA. Uses  $Mg^{++}$  as co-factor..

- Pyruvate kinase - converts PEPA into pyruvic acid. Uses  $Mg^{++}$  as co-factor.

- Succinic thiokinase - converts succinyl co-A to succinate. Originally, GTP is formed in this process, which is converted to ATP.

160. **Chimeric DNA contains DNA from**

Ans: a) Vector DNA and target DNA

161. **Bio-oxidation of food is NOT SEEN in**

Ans: c) Calvin cycle

Calvin cycle(C<sub>3</sub> cycle) and HSK pathway(C<sub>4</sub> cycle) bring about bio-reduction of CO<sub>2</sub>.

162. **The organic acid that helps in opening of stomata**

Ans: d) Malic acid

During day-time, starch is broken down into **malic acid** in the **cytoplasm** of **guard cells**.

163. **A medicinal plant that is better avoided in pregnant women is**

Ans: a) Aloe

The leaf of *Aloe vera* has an **abortifacient**(one that induces abortion)principle that can threaten the pregnancy and may cause abortion. On the other hand, *Asparagus racemosus*(Shatavari) is used to treat threatened abortions and reduce risk of abortions.

164. **Which of these is FALSE about thyroid gland?**

Ans: c) It is ectodermal in origin

1. The follicular cells of a normal thyroid gland are cuboidal, but they may become columnar in overactive gland or squamous(flat) in an underactive gland.

2. Thyroid is the only gland that stores its hormones extracellularly. They are stored in the follicular cavity, in the form of a colloidal jelly-like material called thyroglobulin. As and when required, thyroglobulin is broken down and converted into thyroxine and released into blood stream.

3. Thyroid is endodermal in origin.

4. The inner free margins of follicular cells have microvilli that help them secrete hormones.

165. **Etiolation occurs when**

Ans: a) Plants are grown in dark

Plants grown in dark are soft, delicate, with long internode and pale yellow color. Their leaves are under-developed and pale yellow in color. This is known as etiolation.

166. **The ratio of NADH<sub>2</sub>:FADH<sub>2</sub> formed in complete oxidation of glucose is**

Ans: b) 5:1

In complete oxidation of glucose:

1. 10 NADH<sub>2</sub> are formed

2. 2 FADH<sub>2</sub> are formed

167. **Which of these is NOT wrong?**

Ans: a) Extra-embryonic mesoderm does not give rise to any tissue

1. Extra-embryonic mesoderm lies outside the embryonic disc. Hence, it does not give rise to any tissue.
2. Retina of the eyes develop from ectoderm.
3. The embryonic disc is formed by endoderm and mesoderm.

168. Corpus albicans is formed \_\_\_\_ days before the end of menstrual cycle.

Ans: a) 2-3

- Corpus albicans is formed about 2-3 days before end of the menstrual cycle.
- It is fibrous and does not secrete any hormone.
- Formation of corpus albicans indicates that fertilization did not occur and that the woman has not conceived (woman is not pregnant). Therefore, the next menstrual cycle will not be delayed.
- Since the source of progesterone is lost, the endometrium is shed soon and manifests as menstruation.

169. The outer surface of duramater around brain is

Ans: b) Attached to inner surface of cranium

The outer surface of the duramater around brain is adhered to inner surface of cranium. The inner surface of duramater faces the **sub-dural space** which contains CSF.

The outer surface of the duramater around the **spinal cord** faces **epi-dural space**. It is not in direct contact with the inner surface of the neural arch. The epi-dural space contains loose connective tissue, blood vessels, etc.

170. Site of regeneration of NADP

Ans: a) Stroma of chloroplast

NADP is regenerated by reduction of OAA (in  $C_4$  cycle) and PGA (in  $C_3$  cycle) in stroma of chloroplast. Formation of  $NADPH_2$  occurs in grana/thylakoid during day time by photolysis of water.

171. Neurotoxic bioweapon from cyanobacteria

Ans: d) Saxitoxin

1. Botulinum is obtained from *Clotidium botulinum* and it causes food poisoning.
2. Ricin is obtained from seeds of Castor (*Ricinus communis*). It can cause severe and fatal allergic reaction (produces circulatory shock and other imbalances in blood).
3. Trichothecenes is a toxin of mycotic origin, produced by *Fusarium*. It can cause multi-systemic disorders. It can severely affect immunity, blood functions and brain functions.
4. Saxitoxin (saxitoxin) is a neurotoxin produced by certain BGA.

172. Which one of these is NOT a temporary endocrine gland?

Ans: a) Breasts showing galactogenesis

Breasts showing galactogenesis are temporary as secretion of milk stops after few weeks. But it is not an endocrine gland because its secretion (milk) is not released into the blood. Milk is released on the surface of the nipple into the mouth of the baby.

Corpus luteum and uterine glands in the endometrium are the temporary endocrine glands as they are active only during a certain period of the ovulatory and menstrual cycle. In every cycle, they are newly created and they are broken down at the end of the cycle.

173. An increase in the no. of well differentiated white blood cells is called

Ans: c) Leucocytosis

- Leukemia = Very high WBC count. WBCs are **poorly differentiated**. It is a malignant tumour(cancer) of **bone marrow**.
- Leucocytosis = Increase in WBC count(count above 11,000 per cu.mm of blood). WBCs are well differentiated. This is not a cancer.
- Leucopenia = Reduction in WBC count(count below 4,000 per cu.mm of blood).
- Normal WBC count range = 4 to 11 thousands per cubic mm of blood.

174. **During ventricular systole, backflow of blood INTO THE LEFT VENTRICLE is prevented by**

Ans: c) Ventricular muscle contraction

Note:

- The semilunar valve prevents backflow from systemic aorta into left ventricle during its **diastole**.
- During ventricular systole, the hydrostatic pressure generated due to contraction of the wall muscles is enough to prevent backflow.

175. **Connecting link between reverse glycolysis and photosynthesis is**

Ans: b) Phosphoglyceric acid

Hint: Refer Calvin cycle.

Note: Acetyl co-A is the connecting link between EMP pathway(glycolysis) and Kreb's cycle.

176. **Translocation of water in a tall plant will be maximally reduced by**

Ans: b) Plucking off all the leaves

Option A: It is observed that water continues to rise even in total absence of roots. This is one of the chief reasons why root pressure theory was rejected as the main cause of water translocation.

Option C: Temperature is only one of the many factors affecting rate of transpiration. Other factors include relative humidity, air currents or winds, etc.

Option D: Water loss through lenticular transpiration is very negligible(less than 1% of total transpiration water loss). Hence, plucking all fruits and flower would cause at the most a reduction of 1%.

Option B: Leaves account for 90 to 97% of the water lost through transpiration(stomatal transpiration). Development of transpiration pull starts in the leaves when mesophyll cells first lose water. If this is prevented, the whole chain of events following this can be prevented.

177. **Formation of corpus albicans indicates that**

Ans: b) Fertilization did not occur

In the absence of fertilization, the hormone HCG is not available. Unavailability of this hormone causes the corpus luteum to degenerate into a non-secretory white fibrous body called '\corpus albicans'. In other words, we can say that fertilization has not occurred and the female is not pregnant.

178. **Transpiration occurs through**

Ans: d) All of the above

All the aerial parts of the plant lose water passively by transpiration.

179. **Pregnancy is maintained by the hormone**

Ans: c) Progesterone

Progesterone maintains the thickness of endometrium. It holds the endometrial cells together and prevents shedding. Hence it is also known as **pregnancy hormone**.

Sources of progesterone:

- Corpus luteum (during secretory or luteal phase). If fertilization occurs and the embryo is implanted successfully, corpus luteum **enlarges** and is sustained for three months to provide progesterone. The enlarged corpus luteum is called as **corpus luteum of pregnancy**. It is larger and more active than the corpus luteum formed normally in the secretory or luteal phase.
- After the first three months of pregnancy, the well-developed placenta takes over the task of providing progesterone.

180. **Renal artery is a branch of**

Ans: a) Dorsal aorta

1. Renal artery is a branch of dorsal aorta.
2. Renal vein is a *tributary* of inferior vena cava/poscaval vein.

181. **The confirmatory test for typhoid is**

Ans: a) Widal

Note: Blood culture is the confirmatory test for typhoid. If that is not given in the options, one can safely choose Widal test as answer.

182. **Which one of the following blood vessels in mammals carries the least amount of urea ?**

Ans: d) Renal vein

- Hepatic vein = Maximum urea level because liver is the site of urea formation
- Renal vein = Minimum urea level because kidneys remove the urea
- In humans, the normal level of blood urea is about 17 - 35 mg/100ml.

183. **Which of these hormones are NOT derivatives of single amino acids?**

Ans: c) Oxytocin

Single AA derivatives	Thyroxine, adrenaline and nor-adrenaline
Polypeptides	TSH, FSH, LH,
Glycoproteins	GH, prolactin, oxytocin and ADH
Steroids	Sex hormones(testosterone, estrogen and progesterone), aldosterone, etc.

184. **Example of correct way of defining a population**

Ans: a) Population of dogs in Mumbai in year 2000 - 2005 was 0.1 million

An complete and accurate definition of "population" must contain the following **three** elements:

1. Species
  2. Place(geographical location)
  3. Time-period under description
  4. The count or the population number(obvioulsy!)
- Option (a) is the only one to contain all these three elements.
  - Option (b) does not include the time-period element
  - Option (c) does not include the place element.

185. **Motor performance is not affected in**

Ans: b) Gigantism

1. When under influence of alcohol, cerebrum is first affected and later motor co-ordination is also affected.
2. In spinal cord injury, limbs and other visceral sensory and motor functions are affected depending upon the level of injury.
3. AIDS dementia complex is a neurological syndrome seen in many cases of full blown AIDS(last stage having severe disease). HIV infects brain cells and affects cognition, motor performance and behaviour.

186. **Presence of typhoid bacilli in blood can be detected by**

Ans: a) Culture of blood

Widal test detects the presence of **antibodies against Salmonellae** in blood, and not the antigen or pathogen itself. To detect the presence of Salmonellae in blood, the blood must be cultured on a simple nutrition media over a pH of 6 to 8 at 37°C. Since the organism resides in the GIT(gall bladder), faeces and urine can also be used in culture.

187. **Mucosal layer of the uterus is known as**

Ans: d) Endometrium

188. **Adaptations for wind pollination are**

Ans: d) All of these

1. Versatile anthers and winged pollens: Versatile anthers are those which can swing any way as guided by wind. Winged pollen grains are found in *Pinus*
2. Branched and feathery stigma: Helps capture more pollen grains
3. Leaves are dropped near time of pollination: Else, leaves would obstruct the flow of pollen.

189. **Which of the following is NOT a viral disease ?**

Ans: d) Plague

- Measles is caused by Rubeola virus
- Mumps is caused by Rubella virus
- Small pox is caused by Variola virus, chicken pox is caused by Varicella zoster virus
- Plague is caused by the bacterium *Yersinia pestis*

190. **In a person whose blood group is A+ve, anti-B antibodies appear due to**

Ans: a) Microbial flora in GIT

Some of the antigens of **microbial flora in the GIT** bears very close resemblance to antigens A and B of the ABO blood group system. This is how a person acquires the **isoantibodies**(Isoantibodies are those which are present in few members of a species but absent in others. Eg: anti A antibody and anti-B antibody)

191. **Minimum and maximum values of vital index are**

Ans: d) Both values are undefinable

- Formula to calculate Vitality Index is:  $(N/M) \times 1000$
- It is just a number, and does not have any units.
- Minimum and maximum values of vital index cannot be defined.

192. **New characters can be introduced without the use of recombinant DNA technology by**

Ans: d) All of the above

1. Sexual reproduction can cause appearance of new characters due to genetic recombination.
2. Somatic hybridization can introduce characters that are controlled by cytoplasmic factors.
3. Addition of colchicine to the culture medium in various pre-determined concentrations induces mutations in the cells.

193. **Important benefits of BGA/cyanobacteria are**

Ans: d) All of these

BGA biofertilizer solubilizes the undissolved potassium and phosphorous and makes it available to the plant. It also lowers the pH of soil. This is particularly useful in reclamation of barren land for agricultural use. Water holding capacity is also found to be increased.

194. **Para follicular cells of thyroid are also known as**

Ans: d) C-cells

- They are known as C-cells because their cytoplasm seems clear under the microscope.
- They secrete the hormone thyrocalcitonin.
- They may be present among the follicular or acinal cells, or between the follicles.
- They can be differentiated from follicular cells because of their larger size.

195. **The phenomenon of germination of seeds inside the fruit itself while the fruit still being attached to the parent plant is known as**

Ans: b) Vivipary

1. Vivipary is a condition where the seed germinates while inside the fruit itself with the fruit still attached to the parent plant. It is observed in **mangroves**(eg: *Rhizophora*, *Creiops*, *Bruguiera*).
2. Hypogeal germination: Cotylodeons remain under the soil during germination(Eg: Pea, Maize)
3. Epigeal germination: Cotyledons are lifted above the ground during germination(Eg: Been, Castor)

196. **In SDP and LDP angiosperms, exposure to proper photoperiod is absolutely necessary for**

Ans: b) Flowering

Exposure to proper photoperiod is absolutely necessary for flowering and not photosynthesis. Photosynthesis will take place even when the duration of light exposure is less than proper photoperiod.

Plant processes that are affected by day length are:

1. Flowering
2. Fruit formation
3. Seed formation
4. Bud dormancy
5. Seed dormancy
6. Leaf fall
7. Seed germination

197. **Site of nitrogen fixation in *Rhizobia* infected leguminous plants is**

Ans: c) Root nodules

Root **nodules** is the site of nitrogen fixation in *Rhizobium* infected legumes. Root **hair** is the site of entry of *Rhizobium*.

198. **The sugar in nucleotide molecule is linked to carbon \_\_\_\_ of nitrogen base.**

Ans: a) N-1 of pyrimidine and N-9 of purine

Important positions in nucleotides: N-1 of pyrimidines and N-9 of purines is attached to C1 of pentose sugar. Phosphate group bridges two adjacent nucleotides by linking to C3 of sugar of one and C5 of sugar of another.

199. **Leaf juice of *Aloe vera* mixed with opium serves to relieve**

Ans: b) Headache

Leafjuice of *Aloe vera* mixed with **opium** and applied to forehead relieves headache.

200. **The enzyme that catalyzes link reaction between photolysis and Kreb's cycle**

Ans: c) Pyruvic dehydrogenase

- Decarboxylase occurs in anaerobic respiration.
- Dehydrogenase occurs in link reaction.

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