

**AIPMT – 2014 TEST PAPER WITH SOLUTIONS
(HELD ON SUNDAY 04th MAY, 2014)**

- 91.** Which one of the following shows isogamy with non-flagellated gametes?
 (1) *Sargassum* (2) *Ectocarpus*
 (3) *Ulothrix* (4) *Spirogyra*
Ans. (4)
- 92.** Five kingdom system of classification suggested by R.H. Whittaker is **not** based on :
 (1) Presence or absence of a well defined nucleus.
 (2) Mode of reproduction.
 (3) Mode of nutrition.
 (4) Complexity of body organisation.
Ans. (1)
- 93.** Which one of the following fungi contains hallucinogens ?
 (1) *Morchella esculenta* (2) *Amanita muscaria*
 (3) *Neurospora sp.* (4) *Ustilago sp.*
Ans. (2)
- 94.** Archaeobacteria differ from eubacteria in :
 (1) Cell membrane
 (2) Mode of nutrition
 (3) Cell shape
 (4) Mode of reproduction
Ans. (1)
- 95.** Which one of the following is wrong about *Chara*?
 (1) Upper oogonium and lower round antheridium.
 (2) Globule and nucule present on the same plant.
 (3) Upper antheridium and lower oogonium
 (4) Globule is male reproductive structure
Ans. (3)
- 96.** Which of the following is responsible for peat formation ?
 (1) *Marchanita* (2) *Riccia*
 (3) *Funaria* (4) *Sphagnum*
Ans. (4)
- 97.** Placenta and pericarp are both edible portions in:
 (1) Apple (2) Banana
 (3) Tomato (4) Potato
Ans. (3)
- 98.** When the margins of sepals or petals overlap one another without any particular direction, the condition is termed as :
 (1) Vexillary (2) Imbricate
 (3) Twisted (4) Valvate
Ans. (2)
- 99.** You are given a fairly old piece of dicot stem and a dicot root. Which of the following anatomical structures will you use to distinguish between the two?
 (1) Secondary xylem (2) Secondary phloem
 (3) Protoxylem (4) Cortical cells
Ans. (3)
- 100.** Which one of the following statements is correct ?
 (1) The seed in grasses is not endospermic.
 (2) Mango is a parthenocarpic fruit.
 (3) A proteinaceous aleurone layer is present in maize grain.
 (4) A sterile pistil is called a staminode.
Ans. (3)
- 101.** Tracheids differ from other tracheary elements in :
 (1) having casparian strips
 (2) being imperforate
 (3) lacking nucleus
 (4) being lignified
Ans. (2)
- 102.** An example of edipile underground stem is :
 (1) Carrot (2) Groundnut
 (3) Sweet potato (4) Potato
Ans. (4)
- 103.** Which structures perform the function of mitochondria in bacteria ?
 (1) Nucleoid (2) Ribosomes
 (3) Cell wall (4) Mesosomes
Ans. (4)
- 104.** The solid linear cytoskeletal elements having a diameter of 6 nm and made up of a single type of monomer are known as :
 (1) Microtubules
 (2) Microfilaments
 (3) Intermediate filaments
 (4) Lamins
Ans. (2)
- 105.** The osmotic expansion of a cell kept in water is chiefly regulated by :
 (1) Mitochondria (2) Vacuoles
 (3) Plastids (4) Ribosomes
Ans. (2)
- 106.** During which phase(s) of cell cycle, amount of DNA in a cell remains at 4C level if the initial amount is denoted as 2C ?
 (1) G₀ and G₁
 (2) G₁ and S
 (3) Only G₂
 (4) G₂ and M
Ans. (4)

107. Match the following and select the **correct** answer :

- | | |
|-----------------|-----------------------------------|
| (a) Centriole | (i) Infoldings in mitochondria |
| (b) Chlorophyll | (ii) Thylakoids |
| (c) Cristae | (iii) Nucleic acids |
| (d) Ribozymes | (iv) Basal body cilia or flagella |

- | | | | | |
|-----|------|-------|------|-------|
| | (a) | (b) | (c) | (d) |
| (1) | (iv) | (ii) | (i) | (iii) |
| (2) | (i) | (ii) | (iv) | (iii) |
| (3) | (i) | (iii) | (ii) | (iv) |
| (4) | (iv) | (iii) | (i) | (ii) |

Ans. (1)

108. Dr. F. Went noted that if coleoptile tips were removed and placed on agar for one hour, the agar would produce a bending when placed on one side of freshly-cut coleoptile stumps. Of what significance is this experiment ?

- (1) It made possible the isolation and exact identification of auxin.
- (2) It is the basis for quantitative determination of small amounts of growth-promoting substances.
- (3) It supports the hypothesis that IAA is auxin.
- (4) It demonstrated polar movement of auxins.

Ans. (2)

109. Deficiency symptoms of nitrogen and potassium are visible first in :

- | | |
|----------------------|------------------|
| (1) Senescent leaves | (2) Young leaves |
| (3) Roots | (4) Buds |

Ans. (1)

110. In which one of the following processes CO₂ is **not** released ?

- (1) Aerobic respiration in plants
- (2) Aerobic respiration in animals
- (3) Alcoholic fermentation
- (4) Lactate fermentation

Ans. (4)

111. Anoxygenic photosynthesis is characteristic of :

- | | |
|--------------------|---------------|
| (1) Rhodospirillum | (2) Spirogyra |
| (3) Chlamydomonas | (4) Ulva |

Ans. (1)

112. A few normal seedlings of tomato were kept in a dark room. After a few days they were found to have become white-coloured like albinos. Which of the following terms will you use to describe them?

- | | |
|---------------|----------------|
| (1) Mutated | (2) Embolised |
| (3) Etiolated | (4) Defoliated |

Ans. (3)

113. Which one of the following growth regulators is known as stress hormone ?

- | | |
|---------------------|------------------------|
| (1) Abscissic acid | (2) Ethylene |
| (3) GA ₃ | (4) Indole acetic acid |

Ans. (1)

114. Geitonogamy involves :

- (1) fertilization of a flower by the pollen from another flower of the same plant.
- (2) fertilization of a flower by the pollen from the same flower.
- (3) fertilization of a flower by the pollen from a flower of another plant in the same population.
- (4) fertilization of a flower by the pollen from a flower of another plant belonging to a distant population.

Ans. (1)

115. Male gametophyte with least number of cell is present in :

- | | |
|-------------|-------------|
| (1) Pteris | (2) Funaria |
| (3) Liliium | (4) Pinus |

Ans. (1)

116. An aggregate fruit is one which develops from :

- (1) Multicarpellary syncarpous gynoecium
- (2) Multicarpellary apocarpus gynoecium
- (3) Complete inflorescence
- (4) Multicarpellary superior ovary

Ans. (2)

117. Pollen tablets are available in the market for :

- (1) In vitro fertilization
- (2) Breeding programmes
- (3) Supplementing food
- (4) Ex situ conservation

Ans. (3)

118. Function of filiform apparatus is to :-

- (1) Recognize the suitable pollen at stigma
- (2) Stimulate division of generative cell
- (3) Produce nectar
- (4) Guide the entry of pollen tube

Ans. (4)

119. Non-albuminous seed is produced in :-

- | | |
|-----------|------------|
| (1) Maize | (2) Castor |
| (3) Wheat | (4) Pea |

Ans. (4)

120. Which of the following shows coiled RNA strand and capsomeres?

- | | |
|-------------------|--------------------------|
| (1) Polio virus | (2) Tobacco masaic virus |
| (3) Measles virus | (4) Retrovirus |

Ans. (2)

121. Which one of the following is **wrongly** matched?

- (1) Transcription – Writing information from DNA to t-RNA.
- (2) Translation – Using information in m-RNA to make protein
- (3) Repressor protein – Binds to operator to stop enzyme synthesis.
- (4) Operon – Structural genes, operator and promoter.

Ans. (1)

122. Transformation was discovered by :-

- (1) Meselson and Stahl
- (2) Hershey and Chase
- (3) Griffith
- (4) Watson and Crick

Ans. (3)

123. Fruit colour in squash in an example of :-

- (1) Recessive epistasis
- (2) Dominant epistasis
- (3) Complementary genes
- (4) Inhibitory genes

Ans. (2)

124. Viruses have :-

- (1) DNA enclosed in a protein coat
- (2) Prokaryotic nucleus
- (3) Single chromosome
- (4) Both DNA and RNA

Ans. (1)

125. The first human hormone produced by recombinant DNA technology is :-

- (1) Insulin
- (2) Estrogen
- (3) Thyroxin
- (4) Progesterone

Ans. (1)

126. An analysis of chromosomal DNA using the Southern hybridization technique **does not** use :-

- (1) Electrophoresis
- (2) Blotting
- (3) Autoradiography
- (4) PCR

Ans. (4)

127. In vitro clonal propagation in plants is characterized by :-

- (1) PCR and RAPD
- (2) Northern blotting
- (3) Electrophoresis and HPLC
- (4) Microscopy

Ans. (1)

Sol. RAPD markers are suitable for detecting somaclonal variation

128. An alga which can be employed as food for human being is :-

- (1) Ulothrix
- (2) Chlorella
- (3) Spirogyra
- (4) Polysiphonia

Ans. (2)

129. Which vector can clone only a small fragment of DNA?

- (1) Bacterial artificial chromosome
- (2) Yeast artificial chromosome
- (3) Plasmid
- (4) Cosmid

Ans. (3)

130. An example of ex situ conservation is :-

- (1) National Park
- (2) Seed Bank
- (3) Wildlife Sanctuary
- (4) Sacred Grove

Ans. (2)

131. A location with luxuriant growth of lichens on the trees indicates that the :-

- (1) Trees are very healthy
- (2) Trees are heavily infested
- (3) Location is highly polluted
- (4) Location is not polluted

Ans. (4)

132. Match the following and select the **correct** option :-

(a)	Earthworm	(i)	Pioneer species
(b)	Succession	(ii)	Detritivore
(c)	Ecosystem service	(iii)	Natality
(d)	Population growth	(iv)	Pollination

- | | (a) | (b) | (c) | (d) |
|-----|-------|------|-------|-------|
| (1) | (i) | (ii) | (iii) | (iv) |
| (2) | (iv) | (i) | (iii) | (ii) |
| (3) | (iii) | (ii) | (iv) | (i) |
| (4) | (ii) | (i) | (iv) | (iii) |

Ans. (4)

133. A species facing extremely high risk of extinction in the immediate future is called :-

- (1) Vulnerable
- (2) Endemic
- (3) Critically Endangered
- (4) Extinct

Ans. (3)

134. The zone of atmosphere in which the ozone layer is present is called :-

- (1) Ionosphere
- (2) Mesosphere
- (3) Stratosphere
- (4) Troposphere

Ans. (3)

135. The organization which publishes the Red List of species is :-

- (1) ICFRE
- (2) IUCN
- (3) UNEP
- (4) WWF

Ans. (2)

136. Select the Taxon mentioned that represents both marine and fresh water species :-

- (1) Echinoderms
- (2) Ctenophora
- (3) Cephalochordata
- (4) Cnidaria

Ans. (4)

137. Which one of the following living organisms completely lacks a cell wall?

- (1) Cyanobacteria
- (2) Sea – fan (Gorgonia)
- (3) Saccharomyces
- (4) Blue–green algae

Ans. (2)

138. *Planaria* possess high capacity of :-

- (1) Metamorphosis
- (2) Regeneration
- (3) Alternation of generation
- (4) Bioluminescence

Ans. (2)

139. A marine cartilaginous fish that can produce electric current is :-

- (1) Pristis
- (2) Torpedo
- (3) Trygon
- (4) Scoliodon

Ans. (2)

140. Choose the correctly matched pair :-

- (1) Tendon–Specialized connective tissue
- (2) Adipose tissue – Dense connective tissue
- (3) Areolar tissue – Loose connective tissue
- (4) Cartilage–Loose connective tissue

Ans. (3)

141. Choose the correctly matched pair :-

- (1) Inner lining of salivary ducts – Ciliated epithelium
- (2) Moist surface of buccal cavity – Glandular epithelium
- (3) Tubular parts of nephrons – Cuboidal epithelium
- (4) Inner surface of bronchioles – Squamous epithelium

Ans. (3)

142. In 'S' phase of the cell cycle :-

- (1) Amount of DNA doubles in each cell.
- (2) Amount of DNA remains same in each cell.
- (3) Chromosome number is increased.
- (4) Amount of DNA is reduced to half in each cell.

Ans. (1)

143. The motile bacteria are able to move by :-

- (1) Fimbriae
- (2) Flagella
- (3) Cilia
- (4) Pili

Ans. (2)

144. Select the option which is **not correct** with respect to enzyme action :-

- (1) Substrate binds with enzyme at its active site.
- (2) Addition of lot of succinate does not reverse the inhibition of succinic dehydrogenase by malonate.
- (3) A non-competitive inhibitor binds the enzyme at a site distinct from that which binds the substrate.
- (4) Malonate is a competitive inhibitor of succinic dehydrogenase.

Ans. (2)

145. Which one of the following is a non - reducing carbohydrate ?

- (1) Maltose
- (2) Sucrose
- (3) Lactose
- (4) Ribose 5 - phosphate

Ans. (2)

146. The enzyme recombinase is required at which stage of meiosis :

- (1) Pachytene
- (2) Zygotene
- (3) Diplotene
- (4) Diakinesis

Ans. (1)

147. The initial step in the digestion of milk in humans is carried out by ?

- (1) Lipase
- (2) Trypsin
- (3) Rennin
- (4) Pepsin

Ans. (3)

148. Fructose is absorbed into the blood through mucosa cells of intestine by the process called :

- (1) active transport
- (2) facilitated transport
- (3) simple diffusion
- (4) co-transport mechanism

Ans. (2)

149. Approximately seventy percent of carbon-dioxide absorbed by the blood will be transported to the lungs :

- (1) as bicarbonate ions
- (2) in the form of dissolved gas molecules
- (3) by binding to R.B.C.
- (4) as carbamino - haemoglobin

Ans. (1)

150. Person with blood group AB is considered as universal recipient because he has :

- (1) both A and B antigens on RBC but no antibodies in the plasma.
- (2) both A and B antibodies in the plasma.
- (3) no antigen on RBC and no antibody in the plasma.
- (4) both A and B antigens in the plasma but no antibodies.

Ans. (1)

151. How do parasympathetic neural signals affect the working of the heart ?

- (1) Reduce both heart rate and cardiac output.
- (2) Heart rate is increased without affecting the cardiac output.
- (3) Both heart rate and cardiac output increase.
- (4) Heart rate decreases but cardiac output increases.

Ans. (1)

152. Which of the following causes an increase in sodium reabsorption in the distal convoluted tubule ?

- (1) Increase in aldosterone levels
- (2) Increase in antidiuretic hormone levels
- (3) Decrease in aldosterone levels
- (4) Decrease in antidiuretic hormone levels

Ans. (1)

153. Select the correct matching of the type of the joint with the example in human skeletal system :

	Type of joint	Example
(1)	Cartilaginous joint	between frontal and parietal
(2)	Pivot joint	between third and fourth cervical vertebrae
(3)	Hinge joint	between humerus and pectoral girdle
(4)	Gliding joint	between carpals

Ans. (4)

154. Stimulation of a muscle fiber by a motor neuron occurs at :

- (1) the neuromuscular junction
- (2) the transverse tubules
- (3) the myofibril
- (4) the sarcoplasmic reticulum

Ans. (1)

155. Injury localized to the hypothalamus would most likely disrupt :

- (1) short - term memory.
- (2) co-ordination during locomotion.
- (3) executive functions, such as decision making.
- (4) regulation of body temperature.

Ans. (4)

156. Which one of the following statements is **not correct** ?

- (1) Retinal is the light absorbing portion of visual photo pigments.
- (2) In retina the rods have the photopigment rhodopsin while cones have three different photopigments.
- (3) Retinal is a derivative of Vitamin C.
- (4) Rhodopsin is the purplish red protein present in rods only.

Ans. (3)

157. Identify the hormone with its **correct** matching of source and function :

- (1) Oxytocin - posterior pituitary, growth and maintenance of mammary glands.
- (2) Melatonin - pineal gland, regulates the normal rhythm of sleepwake cycle.
- (3) Progesterone - corpus-luteum, stimulation of growth and activities of female secondary sex organs.
- (4) Atrial natriuretic factor - ventricular wall increases the blood pressure.

Ans. (2)

158. Fight-or-flight reactions cause activation of :

- (1) the parathyroid glands, leading to increased metabolic rate.
- (2) the kidney, leading to suppression of renin-angiotensin-aldosterone pathway.
- (3) the adrenal medulla, leading to increased secretion of epinephrine and norepinephrine.
- (4) the pancreas leading to a reduction in the blood sugar levels.

Ans. (3)

159. The shared terminal duct of the reproductive and urinary system in the human male is :

- (1) Urethra
- (2) Ureter
- (3) Vas deferens
- (4) Vasa efferentia

Ans. (1)

160. The main function of mammalian corpus luteum is to produce :

- (1) estrogen only
- (2) progesterone
- (3) human chorionic gonadotropin
- (4) relaxin only

Ans. (1)

161. Select the correct option describing gonadotropin activity in a normal pregnant female :

- (1) High level of FSH and LH stimulates the thickening of endometrium.
- (2) High level of FSH and LH facilitate implantation of the embryo.
- (3) High level of hCG stimulates the synthesis of estrogen and progesterone.
- (4) High level of hCG stimulates the thickening of endometrium.

Ans. (3)

162. Tubectomy is a method of sterilization in which :

- (1) small part of the fallopian tube is removed or tied up.
- (2) ovaries are removed surgically.
- (3) small part of vas deferens is removed or tied up.
- (4) uterus is removed surgically.

Ans. (1)

163. Which of the following is a hormone releasing Intra Uterine Device (IUD) ?

- (1) Multiload 375
- (2) LNG - 20
- (3) Cervical cap
- (4) Vault

Ans. (2)

164. Assisted reproductive technology, IVF involves transfer of :

- (1) Ovum into the fallopian tube.
- (2) Zygote into the fallopian tube.
- (3) Zygote into the uterus.
- (4) Embryo with 16 blastomeres into the fallopian tube.

Ans. (2)

165. A man whose father was colour blind marries a woman who had a colour blind mother and normal father. What percentage of male children of this couple will be colour blind ?

- (1) 25% (2) 0% (3) 50% (4) 75%

Ans. (3)

166. In a population of 1000 individuals 360 belong to genotype AA, 480 to Aa and the remaining 160 to aa. Based on this data, the frequency of allele A in the population is :-

- (1) 0.4 (2) 0.5 (3) 0.6 (4) 0.7

Ans. (3)

167. A human female with Turner's syndrome :-

- (1) has 45 chromosomes with XO.
- (2) has one additional X chromosome.
- (3) exhibits male characters.
- (4) is able to produce children with normal husband.

Ans. (1)

168. Select the correct option :-

	Direction of RNA synthesis	Direction of reading of the template DNA strand
1	5'—3'	3'—5'
2	3'—5'	5'—3'
3	5'—3'	5'—3'
4	3'—5'	3'—5'

Ans. (1)

169. Commonly used vectors for human genome sequencing are :-

- (1) T-DNA
- (2) BAC and YAC
- (3) Expression Vectors
- (4) T/A Cloning Vectors

Ans. (2)

170. Forelimbs of cat, lizard used in walking; forelimbs of whale used in swimming and forelimbs of bats used in flying are an example of :-

- (1) Analogous organs (2) Adaptive radiation
- (3) Homologous organs (4) Convergent evolution

Ans. (3)

171. Which one of the following are analogous structures :-

- (1) Wings of Bat and Wings of Pigeon.
- (2) Gills of Prawn and Lungs of Man.
- (3) Thorns of *Bougainvillea* and Tendrils of *Cucurbita*
- (4) Flippers of Dolphin and Legs of Horse

Ans. (2)

172. Which is the particular type of drug that is obtained from the plant whose one flowering branch is shown below :-



- (1) Hallucinogen (2) Depressant
- (3) Stimulant (4) Pain - killer

Ans. (1)

173. At which stage of HIV infection does one usually show symptoms of AIDS :-

- (1) Within 15 days of sexual contact with an infected person.
- (2) When the infected retro virus enters host cells.
- (3) When HIV damages large number of helper T-Lymphocytes.
- (4) When the viral DNA is produced by reverse transcriptase.

Ans. (3)

174. To obtain virus - free healthy plants from a diseased one by tissue culture technique, which part/parts of the diseased plant will be taken :-

- (1) Apical meristem only
- (2) Palisade parenchyma
- (3) Both apical and axillary meristems
- (4) Epidermis only

Ans. (3)

175. What gases are produced in anaerobic sludge digesters :-

- (1) Methane and CO₂ only
- (2) Methane, Hydrogen Sulphide and CO₂
- (3) Methane, Hydrogen Sulphide and O₂
- (4) Hydrogen Sulphide and CO₂

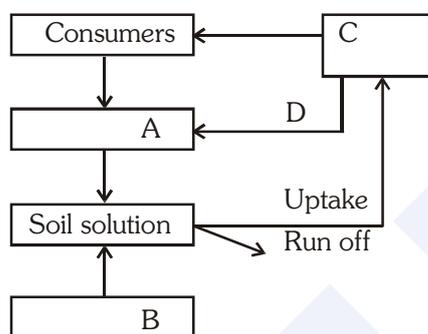
Ans. (2)

176. Just as a person moving from Delhi to Shimla to escape the heat for the duration of hot summer, thousands of migratory birds from Siberia and other extremely cold northern regions move to :-

- (1) Western Chat
- (2) Meghalaya
- (3) Corbett National Park
- (4) Keolado National Park

Ans. (4)

177. Given below is a simplified model of phosphorus cycling in a terrestrial ecosystem with four blanks (A-D). Identify the blanks :-

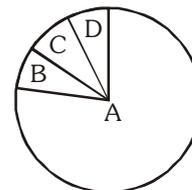


Options :

	A	B	C	D
1	Rock minerals	Detritus	Litter fall	Producers
2	Litter fall	Producers	Rock minerals	Detritus
3	Detritus	Rock minerals	Producer	Litter fall
4	Producers	Litter fall	Rock minerals	Detritus

Ans. (3)

178. Given below is the representation of the extent of global diversity of *invertebrates*. What groups the four portions (A-D) represent respectively :-



Options :

	A	B	C	D
1	Insects	Crustaceans	Other animal groups	Molluscs
2	Crustaceans	Insects	Molluscs	Other animal groups
3	Molluscs	Other animal groups	Crustaceans	Insects
4	Insects	Molluscs	Crustaceans	Other animal groups

Ans. (4)

179. A scrubber in the exhaust of a chemical industrial plant removes :-

- (1) gases like sulphur dioxide
- (2) particulate matter of the size 5 micrometer or above
- (3) gases like ozone and methane
- (4) particulate matter of the size 2.5 micrometer or less

Ans. (1)

180. If 20 J of energy is trapped at producer level, then how much energy will be available to peacock as food in the following chain ?

- plant → mice → snake → peacock :-
- (1) 0.02 J
 - (2) 0.002 J
 - (3) 0.2 J
 - (4) 0.0002 J

Ans. (1)