

**AIPMT 2014 Biology Solution Set-Q**

46. Five kingdom system of classification suggested by R.H. Whittaker is not based on :

- (1) Mode of reproduction.
- (2) Mode of nutrition.
- (3) Complexity of body organisation
- (4) Presence or absence of a well-defined nucleus.

Sol. 1

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

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

Sol. 1

48. In which one of the following processes  $\text{CO}_2$  is not released?

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

Sol. 3

49. Choose the correctly matched pair :

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

Sol. 2

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

- (1) Tobacco mosaic virus
- (2) Measles Virus
- (3) Retrovirus
- (4) Polio virus

Sol. 1

51. 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) Meghalaya
- (2) Corbett National Park
- (3) Keolado National Park
- (4) Western Ghat

Sol. 3

52. 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 phloem
- (2) protoxylem
- (3) Cortical cells
- (4) Secondary xylem

Sol. 2

53. In 'S' phase of the cell cycle :

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

Sol. 4

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

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

Sol. 2

55. Fruit colour in squash is an example of :

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

Sol. 1

56. Identify the hormone with its correct matching of source and function

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

Sol. 1

57. An example of edible underground stem is

- (1) Groundnut
- (2) Sweet potato
- (3) Potato
- (4) Carrot

Sol. 3

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

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

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

Sol. 2

59. Which structures perform the function of mitochondria in bacteria ?

- (1) Ribosomes
- (2) Cell wall
- (3) Mesosomes
- (4) Nucleoid

Sol. 3

60. Select the option which is not correct with respect to enzyme action :

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

Sol. 1

61. Which the particular type of drug that is obtained from the plant whose one flowering branch is shown below?



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

Sol. 1

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

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

Sol. 1

63. The solid linear cytoskeletal elements having a diameter of 6 nm and made up of a single type of monomer are known as;

- 1) Microfilaments
- 2) Intermediate filaments
- 3) Lamins
- 4) Microtubules

Sol. 1

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

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

Sol. 1

65. Tracheids differ from other tracheary elements in:

- 1) being imperforate
- 2) lacking nucleus
- 3) being lignified
- 4) having casparian strips

Sol. 1

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

**Type of joint**

**Example**

- |                         |   |   |
|-------------------------|---|---|
| (1) Pivot joint         | - | Between third and fourth cervical vertebrae |
| (2) Hinge joint         | - | Between humerus and pectoral girdle         |
| (3) Gliding joint       | - | Between carpals                             |
| (4) Cartilaginous joint | - | Between frontal and parietal                |

Sol. 3

67. 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) 0%
- 2) 50%
- 3) 75%
- 4) 25%

Sol. 2

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

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

Sol. 2

69. Function of filiform apparatus is to:

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

Sol. 3

70. Choose the correctly matched pair:

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

Sol. 2

71. 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) Adaptive radiation
- 2) Homologous organs
- 3) Convergent evolution
- 4) Analogous organs



Sol. 2

72. Which one of the following is a non – reducing carbohydrate?

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

Sol.1

73. At which stage of HIV infection does one usually show symptoms of AIDS?

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

Sol. 2

74. What gases are produced in anaerobic sludge digesters?

- 1) Methane, Hydrogen Sulphide and  $\text{CO}_2$
- 2) Methane, Hydrogen Sulphide and  $\text{O}_2$
- 3) Hydrogen Sulphide and  $\text{CO}_2$
- 4) Methane and  $\text{CO}_2$  only

Sol. 1

75. Anoxygenic photosynthesis is characteristic of :

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

Sol. 4

76. 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    |

Sol. 3

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

- 1) trees heavily infested
- 2) location is highly polluted
- 3) location is not polluted
- 4) trees are very healthy

Sol. 3

78. In vitro clonal propagation in plants is characterized by:

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

Sol. 4

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

- 1) chlorella
- 2) Spirogyra
- 3) Polysiphonia
- 4) Ulothrix

Sol. 2

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

- 1) Ethylene
- 2) GA3
- 3) Indole acetic acid

(4) Abscissic and

Sol. 4

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

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

Sol. 4

82. Assisted reproductive technology, IVF involves transfer of:

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

Sol. 1

83. An example of ex situ conservation is:

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

Sol. 1

84. The osmotic of a cell kept in water is chiefly regulated by:

- 1) Vacuoles
- 2) Plastids
- 3) Ribosomes
- 4) Mitochondria

Sol. 1

85. Which one of the following is wrong about Chara?

- 1) Globule and nucule present on the same plant.
- 2) Upper antheridium and lower oogonium
- 3) Globule is male reproductive structure
- 4) Upper oogonium and lower round antheridium.

Sol. 2

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

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

Sol. 2

87. Which one of the following statements is not correct?

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

Sol. 2

88. Which one of the following statements is correct?

- 1) Mango is a parthenocarpic fruit.
- 2) A proteinaceous aleurone layer is present in maize grain.
- 3) A sterile pistile is called a staminode.
- 4) The speed in grasses is not endospemic.

Sol.2

89. Pollen tablet are available in the market for:

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

Sol. 4

90. Select the correct option:

	Direction of RNA synthesis	Direction of reading of the template DNA strand
(1)	3' – 5'	5' – 3'
(2)	5' - 3'	5' -3'
(3)	3' – 5'	3' – 5'
(4)	5' – 3'	3' – 5'

Sol. 4

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

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

Sol. 1

92. A human female with Turner' s syndrome:

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

Sol. 4

93. 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) | (i)  | (ii)  | (iv) | (iii) |
| 2) | (i)  | (iii) | (ii) | (iv)  |
| 3) | (iv) | (iii) | (i)  | (ii)  |
| 4) | (iv) | (ii)  | (i)  | (iii) |

Sol. 4

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

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

Sol. 4

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

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

Sol. 2

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

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

Sol. 2

97. Which one of the following fungi contains hallucinogens?

- 1) Amanita muscaria
- 2) Neurospora sp.
- 3) Ustilago sp.
- 4) Morchella esculenta

Sol. 1

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

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

Sol. 4

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

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

Sol. 3

100. When the margins of sepals or petals overlap one another without any particular direction, the condition is termed as:

- 1) Imbricate
- 2) Twisted
- 3) Valvate
- 4) Vexillary

Sol. 1

101. An aggregate fruit is one which develops from:

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

Sol. 1

102. Commonly used vector for human genome sequencing are:

- 1) BAC and YAV
- 2) Expression Vectors
- 3) T/A Cloning Vectors
- 4) T – DNA

Sol. 1

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

Sol. 2

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

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

Sol. 2

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

- 1) the transverse tubules



- 2) the myofibril
- 3) the sarcoplasmic reticulum
- 4) the neuromuscular junction

Sol. 4

106. Planaria posses high capacity of:

- 1) regeneration
- 2) alternation of generation
- 3) bioluminescence
- 4) metamorphosis

Sol. 1

107. Placenta and pericarp are both edible portions in:

- 1) Banana
- 2) Tomato
- 3) Potato
- 4) Apple

Sol. 2

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

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

Sol. 4

109. Geitonogamy involves:

- 1) fertilization of a flower by the pollen from the same flower.
- 2) fertilization of a flower by the pollen from a flower of another plant in the same population.

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

Sol. 1

110. Viruses have:

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

Sol. 4

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

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

Sol. 4

112. A marine cartilaginous fish that can produce electric current is

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

Sol. 1

113. An analysis of chromosomal DNA using the Southern hybridization technique does not use:

- 1) Blotting
- 2) Autoradiography
- 3) PCR

## 4) Electrophoresis

Sol. 3

114. Archaeobacteria differ from eubacteria in:

- 1) Mode of nutrition
- 2) Cell shape
- 3) Mode of reproduction
- 4) Cell membrane structure

Sol. 4

115. 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) 0.002 J
- 2) 0.2 J
- 3) 0.0002 J
- 4) 0.02 J

Sol. 4

116. Which one of the following are analogous structures?

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

Sol. 4

117. 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 is the basis for quantitative determination of small amounts of growth-promoting substances.

- 2) It supports the hypothesis that IAA is auxin.
- 3) It demonstrated polar movement of auxins.
- 4) It made possible the isolation and exact identification of auxin.

Sol. 4

118. Non-albuminous seed is produced in:

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

Sol. 3

119. 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)  $G_1$  and S
- 2) Only  $G_2$
- 3)  $G_2$  and M
- 4)  $G_0$  and  $G_1$

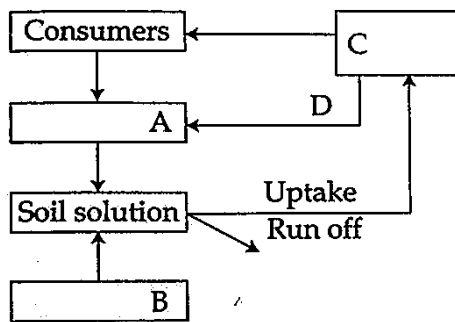
Sol. 2

120. Transformation was discovered by:

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

Sol. 2

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



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

Sol. 2

122. 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 :

- a. 0.5
- b. 0.6
- c. 0.7
- d. 0.4

Sol. 2

123. Tubectomy is a method of sterilization in which :

- a. ovaries are removed surgically.
- b. small part of vas deferens is removed or tied up.

- c. uterus is removed surgically
- d. small part of the fallopian tube is removed or tied up.

Sol. 4

124. Which of the following is responsible for peat formation ?

- a. Riccia
- b. Funaria
- c. sphagnum
- d. Marchantia

Sol. 3

125. Which one of the following shows isogamy with non-flagellated gametes ?

- a. Ectocarpus
- b. Ulothrix
- c. Spirogyra
- d. Sargassum

Sol. 3

126. Which one of the following is wrongly matched ?

- a. Translation – Using information in m-RNA to make protein.
- b. Repressor protein-Binds to operator to stop enzyme synthesis.
- c. Operon – Structural genes, operator and promoter.
- d. Transcription – Writing information from DNA to t-RNA

Sol. 3

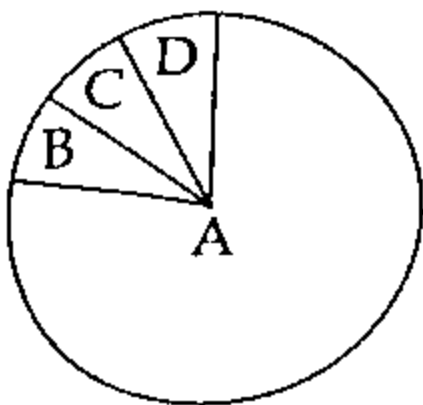
127. Which of the following is a hormone releasing intra Uterine Device (IUD) ?

- a. LNA – 20
- b. Cervical cap

- c. Vault  
d. Multiload 375

Sol. 4

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



Option :

	A	B	C	D
(1)	Crustaceans	Insects	Molluscs	Other animal group
(2)	Molluscs	Other animal group	Crustaceans	Insects
(3)	insects	Molluscs	Crustaceans	Other animal group
(4)	Insects	Crustaceans	Other animal group	Molluscs

Sol. 3

129. Male gametophyte with least number of cells is present in :

- a. Funaria
- b. Lilium
- c. Pinus
- d. Pteris

Sol. 2

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

- a. Ureter
- b. Vas deferens
- c. Vasa efferentia
- d. Urethra

Sol. 4

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

- a. co-ordination during locomotion.
- b. executive functions, such as decision making.
- c. regulation of body temperature.
- d. short – term memory.

Sol. 3

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

- a. High level of FSH and LH facilitate implantation of the embryo.
- b. High level of hCG stimulates the synthesis of estrogen and progesterone.
- c. High level of hCG stimulates the thickening of endometrium.



d. High level of FSH and LH stimulates the thickening of endometrium.

Sol. 2

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

- a. Trypsin
- b. Rennin
- c. Pepsin
- d. Lipase

Sol. 3

134. The motile bacteria are able to move by :

- a. flagella
- b. cilia
- c. pili
- d. fimbriae

Sol. 1

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

- a. both A and B antibodies in the plasma.
- b. no antigen on RBC and no antibody in the plasma.
- c. both A and B antigens in the plasma but no antibodies.
- d. both A and B antigens on RCB but no antibodies in the plasma.

Sol. 4