



General Instructions

- (i) The test is of 3 hours and 15 minutes duration.
- (ii) This test paper consists of 180 questions. The maximum marks are 720.
- (iii) Physics and Chemistry contains 45 questions each and Biology (Botany and Zoology) contains 90 questions.
- (iv) Each question carries +4 marks for correct answer and –1 mark for wrong answer.

91. Given below are two statements :

Statement I : The class name Reptilia refers to creeping or crawling mode of locomotion.

Statement II : All organisms belonging to Reptilia have three chambered heart.

In the light of the above statements, choose the *most appropriate* answer from the options given below :

- (A) Statement I is incorrect but Statement II is correct
- (B) Both Statement I and Statement II are correct
- (C) Both Statement I and Statement II are incorrect
- (D) Statement I is correct but Statement II is incorrect

92. How many turns of Calvin cycle are required for the formation of three molecules of glucose ?

- (A) 18
- (B) 6
- (C) 3

(D) 1

93. Photorespiration reaction catalyzed by RuBisCo is shown below :



Identify "X" from the given options :

- (A) Malate
 - (B) Phosphoenolpyruvate
 - (C) 2-Phosphoglycolate
 - (D) Oxaloacetate
-

94. Given below are two statements :

Statement I : In gymnosperms, the male and female gametophytes remain within the sporangia.

Statement II : In gymnosperms, seeds are not covered.

In the light of the above statements, choose the *most appropriate* answer from the options given below :

- (A) Statement I is incorrect but Statement II is correct
 - (B) Both Statement I and Statement II are correct
 - (C) Both Statement I and Statement II are incorrect
 - (D) Statement I is correct but Statement II is incorrect
-

95. How many molecules of pyruvic acid are produced at the end of glycolysis from 206 molecules of glucose ?

- (A) 412
 - (B) 206
 - (C) 309
 - (D) 103
-

96. Match List-I with List-II.

List-I

A. Fusion of protoplasts between gametes

B. Fusion of two nuclei

C. Generation of haploid spores

List-II

I. Meiosis

II. Plasmogamy

III. Karyogamy

Choose the correct answer from the options given below :

(A) A-I, B-III, C-II

(B) A-II, B-III, C-I

(C) A-II, B-I, C-III

(D) A-III, B-II, C-I

97. Mitochondrial inner membrane encloses _____

(A) aqueous humor

(B) matrix

(C) cytosol

(D) mucus

98. Phyllotaxy is the pattern of arrangement of _____ on the stem or branch.

(A) sepals

(B) leaves

(C) flowers

(D) fruits

99. Mad cow disease is caused by _____

(A) *Mycoplasma* sp.

(B) prions

(C) viroids

(D) *Aspergillus* sp.

100. Cell theory was formulated by _____

- (A) Antonie Van Leeuwenhoek
 - (B) Schleiden and Schwann
 - (C) Robert Brown
 - (D) Singer and Nicolson
-

101. Which of the following plant growth regulators promotes internode elongation prior to flowering in cabbage ?

- (A) Ethephon
 - (B) Absciscic acid
 - (C) Gibberellin
 - (D) Indole butyric acid
-

102. Which pigment has absorption peak at 700 nm in the photosynthetic reaction centre PS I (P700) ?

- (A) Carotenoids
 - (B) Chlorophyll b
 - (C) Chlorophyll a
 - (D) Xanthophylls
-

103. Sphenopsida class belongs to

- (A) pteridophytes
 - (B) bryophytes
 - (C) angiosperms
 - (D) gymnosperms
-

104. Which of the following represents the correct sequence of arrangement of bones in the lower limb of humans ?

- (A) Femur-tarsal-patella-tibia
 - (B) Femur-tibia-patella-tarsal
 - (C) Patella-femur-tibia-tarsal
 - (D) Femur-patella-tibia-tarsal
-

105. Which of the following plant growth regulators is used as herbicide ?

- (A) Gibberellin
 - (B) 2,4-D
 - (C) Kinetin
 - (D) Absciscic acid
-

106. Genus represents

- (A) a group of closely related families
 - (B) an individual plant or animal
 - (C) a population of plants and animals
 - (D) a group of closely related species
-

107. The plastid that stores xanthophyll is known as

- (A) amyloplast
 - (B) chloroplast
 - (C) chromoplast
 - (D) aleuroplast
-

108. In water, frogs respire using _____

- (A) trachea
 - (B) skin
-

- (C) buccal cavity
 - (D) lungs
-

109. Which of the following is not a characteristic of chordates ?

- (A) Presence of post anal part (tail)
 - (B) Presence of notochord
 - (C) Central nervous system is dorsal
 - (D) Absence of gills
-

110. Smooth endoplasmic reticulum _____

- (A) is a site for the synthesis of carbohydrates
 - (B) has ribosomes attached to its surface
 - (C) is the major site for the synthesis of lipids
 - (D) is actively involved in protein synthesis
-

111. Which of the following are characteristics of prokaryotic cells ?

- (a) Ribosomes are made of 50S and 30S subunits
- (b) They can have plasmids
- (c) They contain mesosome
- (d) They have peroxisomes

Choose the correct answer from the options given below :

- (A) (a), (b) and (c) only
 - (B) (b) and (c) only
 - (C) (a) and (c) only
 - (D) (a), (c) and (d) only
-

112. Match List-I with List-II.

List-I**A. Cristae****B. Cisternae****C. Thylakoids****D. Phospholipid****List-II****I. Flat membrane sacs in stroma of chloroplast****II. Infoldings in mitochondria****III. Cell membrane****IV. Disc shaped sacs in the Golgi apparatus**

Choose the correct answer from the options given below :

(A) A-IV, B-III, C-I, D-II

(B) A-III, B-IV, C-I, D-II

(C) A-II, B-IV, C-I, D-III

(D) A-II, B-IV, C-III, D-I

113. Which of the following statements related to pituitary gland are correct ?

(a) It is divided anatomically into adenohypophysis and neurohypophysis

(b) It secretes follicle stimulating hormone

(c) It secretes melanocyte stimulating hormone

(d) It does not secrete prolactin

Choose the correct answer from the options given below :

(A) (b) and (c) only

(B) (a) and (d) only

(C) (a), (b) and (c) only

(D) (c) and (d) only

114. Which of the following statements regarding photorespiration are correct ?

(a) Do not occur in C3 plants

(b) CO_2 is consumed and O_2 is generated

(c) Phosphoglycolate is formed

(d) No synthesis of ATP and NADPH

Choose the correct answer from the options given below :

(A) (a) and (b) only

(B) (a) and (d) only

- (C) (c) and (d) only
(D) (b) and (d) only
-

115. Which of the following statements is incorrect ?

- (A) Fibrinogen is produced from fibrin (B) Blood coagulates in response to an injury (C) Blood clot consists of fibrins (D) Fibrin is produced from fibrinogen
-

116. Arrange the following taxonomic categories in ascending order.

- (a) Genus
(b) Class
(c) Order
(d) Phylum
(e) Family
(f) Kingdom
(g) Species

Choose the correct answer from the options given below :

- (A) (f), (c), (b), (g), (d), (e), (a)
(B) (g), (a), (e), (c), (b), (d), (f)
(C) (a), (c), (d), (g), (f), (b), (e)
(D) (g), (c), (d), (b), (e), (a), (f)
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117. Select the correct sequence of experiments that led to a gradual understanding of photosynthesis in green plants.

- (A) Production of glucose → role of air → release of oxygen → absorption spectra of chlorophyll a and b
(B) Absorption spectra of chlorophyll a and b → production of glucose → release of oxygen → role of air
(C) Role of air → release of oxygen → production of glucose → absorption spectra of chlorophyll a and b

(D) Release of oxygen → production of glucose → absorption spectra of chlorophyll a and b → role of air

118. Match List-I with List-II.

List-I	List-II
A. Starch	I. Fights infection
B. Antibody	II. Energy storage
C. Concanavalin A	III. Glucose transport
D. Glut-4	IV. Lectin

Choose the correct answer from the options given below :

- (A) A-I, B-II, C-III, D-IV
 - (B) A-I, B-II, C-IV, D-III
 - (C) A-II, B-I, C-IV, D-III
 - (D) A-II, B-I, C-III, D-IV
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119. The number of vertebrae in a human is

- (A) 206
 - (B) 7
 - (C) 12
 - (D) 26
-

120. Endomembrane system includes

- (A) Golgi complex, chloroplast, peroxisomes and vacuole
 - (B) endoplasmic reticulum, Golgi complex, lysosomes and vacuole
 - (C) endoplasmic reticulum, chloroplast, peroxisomes and vacuole
 - (D) mitochondria, chloroplast, peroxisomes and vacuole
-

121. Length of the stem at time 0 is 20 cm. The arithmetic growth rate is 30 cm per day. What is the length of the stem at the end of the 7th day ?

- (A) 460 cm
 - (B) 50 cm
 - (C) 170 cm
 - (D) 230 cm
-

122. Match List-I with List-II.

List-I	List-II
A. Spherical	I. Vibrio
B. Rod	II. Cocci
C. Comma	III. Spirilla
D. Spirillum	IV. Bacilli

Choose the correct answer from the options given below :

- (A) A-II, B-IV, C-I, D-III
 - (B) A-I, B-III, C-II, D-IV
 - (C) A-III, B-II, C-I, D-IV
 - (D) A-II, B-I, C-IV, D-III
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123. The number of action potentials generated by sino-arterial node (SAN) in a healthy human is _____ per minute.

- (A) 120 - 140
 - (B) 28 - 30
 - (C) 70 - 75
 - (D) 100 - 110
-

124. Match List-I with List-II.

List-I	List-II
A. Family	I. Sapindales
B. Genus	II. Dicotyledonae
C. Class	III. Anacardiaceae
D. Phylum	IV. Angiospermae
E. Order	V. Mangifera

Choose the correct answer from the options given below :

- (A) A-III, B-V, C-II, D-IV, E-I
 - (B) A-I, B-V, C-II, D-IV, E-III
 - (C) A-II, B-I, C-III, D-IV, E-V
 - (D) A-II, B-III, C-V, D-I, E-IV
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125. Which of the following is not a part of human central neural system ?

- (A) Pericardium
 - (B) Arachnoid
 - (C) Dura mater
 - (D) Pia mater
-

126. Given below are two statements :

Statement I : Chromosomes are fully condensed at the end of prophase I.

Statement II : Meiosis I resembles mitosis.

In the light of the above statements, choose the *most appropriate* answer from the options given below :

- (A) Statement I is incorrect, but Statement II is true
 - (B) Both Statement I and Statement II are true
 - (C) Both Statement I and Statement II are false
 - (D) Statement I is correct, but Statement II is false
-

127. Match List-I with List-II.

List-I	List-II
A. Marginal placentation	I. Argemone
B. Axile placentation	II. Tomato
C. Parietal placentation	III. Primrose
D. Free central placentation	IV. Pea

Choose the correct answer from the options given below :

- (A) A-IV, B-II, C-I, D-III
 - (B) A-II, B-IV, C-I, D-III
 - (C) A-IV, B-II, C-III, D-I
 - (D) A-IV, B-III, C-I, D-II
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128. Symbiotic association between fungi and algae are called

- (A) chrysophytes
 - (B) lichens
 - (C) sponges
 - (D) mycorrhiza
-

129. Which of the following is not a prokaryote ?

- (A) Fungi
 - (B) Bacteria
 - (C) Blue green algae
 - (D) Mycoplasma
-

130. Arrange the following elements in descending order of their contribution to percentage weight of the human body.

- (a) Oxygen (b) Carbon
- (c) Hydrogen (d) Nitrogen

Choose the correct answer from the options given below :

- (A) (b), (a), (c), (d)
 - (B) (a), (b), (c), (d)
 - (C) (c), (a), (b), (d)
 - (D) (b), (c), (d), (a)
-

131. Which one of the following statements is incorrect ?

- (A) β -cells of pancreas secrete insulin
 - (B) α -cells of pancreas secrete glucagon
 - (C) α -cells of pancreas secrete insulin
 - (D) Glucagon stimulates glycogenolysis
-

132. Which of the following are characteristic features of Solanaceae family ?

- (a) Flowers are bisexual and actinomorphic
- (b) Calyx have five sepals and are united
- (c) Androecium have five stamens and are epipetalous
- (d) Ovary is inferior

Choose the correct answer from the options given below :

- (A) (b), (c) and (d) only
 - (B) (a), (b) and (c) only
 - (C) (d) only
 - (D) (a) and (b) only
-

133. Given below are two statements :

Statement I : When any plane passing through the central axis of the body divides the organism into two identical halves, it is called radial symmetry.

Statement II : In phylum Echinodermata, both adults and larvae are radially symmetrical.

In the light of the above statements, choose the *most appropriate* answer from the options given below :

- (A) Statement I is incorrect but Statement II is correct
 - (B) Both Statement I and Statement II are correct
 - (C) Both Statement I and Statement II are incorrect
 - (D) Statement I is correct but Statement II is incorrect
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134. The correct sequence of adult cell cycle phases is

- (A) S-M-G₂-G₁
- (B) G₁-G₂-S-M

(C) G1-M-G2-S

(D) G1-S-G2-M

135. In frogs, the number of pairs of cranial nerves arising from the brain are

(A) 12

(B) 6

(C) 9

(D) 10
