

Register Number :

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Subject Code : 36

BIOLOGY

Time : 3 Hours 15 Minutes]

[Total No. of questions : 47]

[Max. Marks : 70]

- Instructions :** 1) This question paper consists of four Parts **A, B, C, D**.
 2) Part – **A** consists of **I** and **II** and Part – **D** consists **two** Parts, Section – **I** and **II**.
 3) **All** the Parts are **compulsory**.
 4) **Draw** diagrams **wherever** necessary. **Unlabeled** diagrams do **not** carry any marks.

**PART – A**

I. Select the correct alternative from the choices given below :

(1×15=15)

- All the members of Kingdom Protista are
 - Single-celled prokaryotes
 - Single-celled eukaryotes
 - Multicellular eukaryotes
 - Multicellular prokaryotes
- Male and female gametophytes do not have independent, free-living existence in
 - Bryophytes
 - Pteridophytes
 - Gymnosperms
 - All of the above
- Cellular level of organisation is seen in
 - Porifera
 - Coelenterata
 - Annelida
 - Mollusca
- In mango, the middle, fleshy, edible part of the fruit is
 - Epicarp
 - Endocarp
 - Mesocarp
 - Exocarp
- A large number of scattered vascular bundles are seen in
 - Monocot root
 - Dicot root
 - Dicot stem
 - Monocot stem
- Ribosomes of eukaryotes are
 - 80S
 - 70S
 - 50S
 - 30S
- Which structure of the starch molecule forms blue colour with I_2 ?
 - Helical
 - Branched
 - Linear
 - Spherical

P.T.O.

- 8) The period of cell cycle during which synthesis or replication of DNA takes place is
 a) M-phase b) S-phase c) G_1 -phase d) G_2 -phase
- 9) High productivity and better yields in C_4 -plants compared to C_3 -plants is due to
 a) Lack of RuBisCO b) Lack of Calvin cycle
 c) Lack of photorespiration d) Lack of chlorophyll-a
- 10) If fatty acids were to be respired, they would be first degraded to _____
 a) Pyruvic acid b) PGAL
 c) Glucose d) Acetyl Co-A
- 11) A thin elastic cartilaginous flap that covers the glottis during swallowing is
 a) Tongue b) Cardiac sphincter
 c) Larynx d) Epiglottis
- 12) Heart is protected by a double walled membranous bag called
 a) Pleural membrane b) Pericardium
 c) Renal capsule d) Meninges
- 13) Which of the following is a mismatched pair ?
 a) Ammonotelic - Bony fishes b) Ureotelic - Mammals
 c) Ammonotelic - Snails d) Uricotelic - Reptiles
- 14) Which of the following is not true regarding hormones ?
 a) Non-nutrient chemicals
 b) Produced in large amounts
 c) Act as intercellular messengers
 d) Produced in trace amounts
- 15) The releasing hormone produced by hypothalamus is
 a) GnRH b) Somatostatin c) FSH d) Prolactin

II. Fill in the blanks by choosing the appropriate word/words from those given below :

(1×5=5)

[Summer sleep, Insulin, Plumule, Radicle, Interkinesis, Ethylene]

- 16) The direct elongation of _____ leads to the formation of primary root.
- 17) Frogs take shelter in deep burrows to get protection from extreme heat in summer is called _____
- 18) _____ is the stage between meiosis-I and meiosis-II.
- 19) A simple gaseous plant growth regulator is _____
- 20) The β -cells of pancreas secrete _____



PART – B

III. Answer **any five** of the following questions in **3-5** sentences wherever applicable :

(2×5=10)

- 21) Name the family to which the following belong.
 - a) Datura
 - b) Felis
- 22) Mention the parts of excretory system of frog.
- 23) Write the key features of mitotic metaphase.
- 24) Define :
 - a) Differentiation
 - b) Dedifferentiation.
- 25) Differentiate micromolecules and macromolecules.
- 26) Write the partial pressures of oxygen and carbon dioxide in alveoli and deoxygenated blood.
- 27) Name the bones of the hand.
- 28) What is synapse ? Mention its types.

PART – C

IV. Answer **any five** of the following questions in **40-80** words **each** wherever applicable :



(3×5=15)

- 29) Differentiate between green algae and red algae.
- 30) Write the salient features of Aves.
- 31) Explain any three types of placentation.
- 32) Compare the anatomy of dicot root and monocot root.
- 33) Mention the types of co-factors with an example each.
- 34) Describe the following.
 - a) Synapsis
 - b) Bivalent
 - c) Chiasmata.
- 35) Name the parts of human body involved in the regulation of respiration.
- 36) Draw a diagram showing sagittal section of human brain and label the parts of forebrain.



PART – D
Section – I


V. Answer **any four** of the following questions in about **200-250** words **each** wherever applicable :

- 37) a) List the characteristic features of mosses.  (5×4=20) 3
b) Write the uses of sphagnum. 2
- 38) Mention the phylum in which following structures are seen.
a) Parapodia b) Comb plates
c) Flame cells d) Malpighian tubules
e) Radula (1+1+1+1+1)
- 39) Draw a labeled diagram of plant cell.
- 40) a) What is fermentation ? 1
b) Name the enzymes involved in the formation of ethanol and lactic acid. 2
c) Give an example of cells that produce ethanol and lactic acid. 2
- 41) Explain the physiological effects of auxins. 
- 42) Sketch and label human excretory system.
- 43) Describe the structure of a myofibril.
- 44) Write a short note on functions of any five hormones of anterior pituitary.

Section – II

VI. Answer **any one** of the following questions in about **200-250** words **each** wherever applicable :

(5×1=5)

- 45) What is centromere ? The position of centromere is not same in all chromosomes and it forms the basis of classification of chromosomes. Explain the types of chromosomes on this basis.
- 46) Describe the role of mesophyll cells and bundle sheath cells in C₄-pathway of CO₂ fixation.
- 47) Name the heart disorders in humans based on following features.
a) The deposits of calcium, fat, cholesterol, fibrous tissue make the lumen of the arteries narrower.
b) Acute chest pain when no enough oxygen is reaching heart muscles.
c) Inability of the heart to pump blood efficiently to meet body needs. 
d) Blood pressure above $\frac{140}{90}$ mmHg after repeated checkups.
e) Sudden damage to heart muscle due to inadequate blood supply.

(1+1+1+1+1)