2021
BIOLOGY

Total marks : 70 Time : 3 hours

General instructions:

i) Approximately 15 minutes is allotted to read the question paper and revise the answers.

ii) All questions are compulsory. Marks are indicated against each question.

*iii) The question paper consists of two parts – Part **A** and Part **B**. Each part contain 14 questions.*

iv) Internal choice has been provided in some questions.

v) Write the answers of Part A and Part B in separate answer books. Marks shall not be awarded if the answers of both the Parts are written in one book nor marks awarded if answers of Part A are written in the answer book of Part B and vice-versa.

N.B: Check that all pages of the question paper is complete as indicated on the top left side.

PART - A

1. Carbohydrates storing plastid is called **1**
   (a) amyloplast (b) aleuroplast
   (c) elaioplast (d) chloroplast

2. The contractile vacuole is important for excretion in **1**
   (a) Protists (b) Euglena
   (c) Amoeba (d) Monera

3. The primary CO_2 acceptor in C_4 plants is **1**
   (a) RuBP (b) PEP
   (c) PGA (d) NADP

4. Glycolysis takes place in **1**
   (a) mitochondria (b) grana
   (c) endoplasmic reticulum (d) cytoplasm

5. Which of the following is the only gaseous plant growth regulator found in plants? **1**
   (a) Ethylene (b) Abscisic acid
   (c) Auxin (d) Cytokinin

6. Differentiate between red algae and brown algae. **2**

7. What are lysosomes? Name two enzymes found in lysosome. **2**

8. State the law of limiting factors. Who proposed the law of limiting factor? **2**

9. Explain haplo-diplontic life cycle with the help of a diagram. **3**

10. Explain any three types of chromosomes based on the position of centromere with the help of a diagram. **3**

11. **a.** Write three important functions of ethylene.
Or **3**
b. Write three physiological functions of auxin.

12. **a.** Describe the structure of mitochondria with the help of a diagram.
Or **5**
b. Explain the structure of cilia and flagella with the help of a diagrammatic representation.

13. **a.** What is photorespiration? Explain the various factors affecting photosynthesis.
Or **5**
b. Give the differences between C_3 and C_4 plants.

14. **a.** Explain the process of glycolysis with the help of a schematic representation.
Or **5**
b. Explain the process of electron transport system with the help of diagrammatic representation.

PART - B

1. Bacteria that can survive in extremely salty areas are called **1**
(a) archaebacteria (b) methanogens
(c) eubacteria (d) halophiles

2. Who proposed the two kingdom classification? **1**
(a) Linnaeus (b) R.H. Whittaker
(c) Aristotle (d) Darwin

3. Marasmus is caused due to deficiency of **1**
(a) lipids (b) proteins
(c) amino acids (d) carbohydrates

4. O_2 binds with haemoglobin in a reversible manner to form **1**
(a) oxyhaemoglobin (b) carbamine haemoglobin
(c) both (a) and (b) (d) none of the above

5. β cells of pancrease produce **1**
   (a) glucagon (b) insulin
   (c) adrenaline (d) estrogen

6. Write a short note on cellulose. **2**

7. Differentiate between cytokinesis and karyokinesis. **2**

8. Explain the following terms: **2**
   (i) Emphysema (ii) Occupational respiratory disorder

9. Write six characteristic features of the phylum Arthropoda. **3**

10. **a.** What is cell cycle? Diagrammatically, show cell cycle indicating formation of two cells from one cell.
   Or **3**
   b. Write three significances of mitosis and meiosis.

11. What is peristalsis? How does it help in digestion? **3**

12. **a.** Explain meiosis II with the help of a labelled diagram.
   Or **5**
   b. What are macromolecules? Give two examples. Mention four properties of proteins.

13. **a.** Explain the Renin-Angiotensin regulation of kidney function.
   Or **5**
   b. Write an account on haemodialysis.

14. **a.** What is diabetes? What is the ultimate hormonal deficiency in this disease? How does this affect an individual's ability to use glucose? Mention any two possible treatments for diabetes mellitus.
   Or **5**
   b. Name the hormones secreted by adrenal gland. Explain their actions in tabular form.

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