

**SUBJECT : BIOLOGY****Time : 3 hrs.****M.M. : 70****General Instructions :**

- (i) **All questions are compulsory.**
- (ii) **The question paper consists of five sections A, B, C, D and E. Section-A consists 5 questions of 1 mark each, Section-B consists of 5 questions of 2 marks each, Section-C has 10 questions of 3 marks each, Section-D consists of 3 questions of 5 marks each.**
- (iii) **Section-E consists of 2 questions based on Open Text Based Assessment and each question carries 5 marks each.**
- (iv) **There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and 3 questions of 5 marks weightage given in Section-D. A student has to attempt only one of the alternatives in such questions.**
- (v) **Wherever necessary, the diagrams drawn should be neat and properly labelled.**

**SECTION-A**

- Q1. Name the membranous extensions of cyanobacteria that have pigments. (1)
- Q2. Humans possess diphyodont dentition. Justify. (1)
- Q3. Why is PSI called P700 and PSII called as P680? (1)
- Q4. Give an example of a plant having pneumatophores. What is its function? (1)
- Q5. 'X' is a polymer of fructose while 'Y' a storage polysaccharide in animals is a polymer of glucose. Identify 'X' and 'Y'. (1)

### SECTION-B

- Q6. How are lysosomes formed? State their function in a cell. (2)
- Q7. What is glycolysis? Name the two monosaccharides which readily enter the glycolytic pathway. (2)
- Q8. Differentiate between myelinated and non-myelinated axon. (2)

OR

- Where are SA node and AV node located in the heart? What is their role in cardiac cycle? (2)
- Q9. Define aestivation. Represent floral parts showing (a) vexillary (b) imbricate aestivation. (2)
- Q10. Identify the type of animals tissue: (2)
- (a) It is specialised to store fats
  - (b) It forms a diffusion boundary
  - (c) It is made up of osteocytes
  - (d) Contractile tissue present only in heart

### SECTION-C

- Q11. Describe the classification of flowers on the basis of position of ovary. (3)
- Q12. Describe the events that occur during joint diastole and atrial systole of cardiac cycle. (3)

OR

- What is the location of juxtaglomerular apparatus in human kidney? Explain its function. (3)
- Q13. How does intestinal juice contribute to digestion of proteins? What provides an alkaline pH in the small intestine? (3)
- Q14. (a) Differentiate between radial and conjoint vascular bundles. Where are they found? (3)
- (b) Name the type of tissue represented by jute fibres used in making ropes. (3)

- Q15. (a) What are the three components of a nucleotide?  
(b) Nucleic acids are types of polynucleotides. Give two examples of nucleic acids.  
(c) Which bond links aminoacids in a polypeptide? (3)
- Q16. (a) What is the significance of S-phase in cell cycle?  
(b) Why is meiosis I called reduction division?  
(c) State the characteristic feature of diplotene stage of meiosis. (3)
- Q17. Expand PEP. Where is it produced in  $C_4$  plants? What is its role in biosynthetic pathway? (3)
- Q18. Mention the criteria for the essentiality of an element by a plant. (3)
- Q19. (a) Both guttation and transpiration are mechanisms a plant adopts to get rid of excess of water. Mention two ways in which these mechanisms differ from each other.  
(b) What is a mycorrhiza? (3)
- Q20. Draw a well labelled diagram to show the L.S. of human kidney. (3)

#### SECTION-D

- Q21. Explain the mechanism of contraction of skeletal muscle.

OR

- (a) How is a nerve impulse transmitted across a chemical synapse? Explain.
- (b) Identify the hormone which performs the following function:
- reabsorption of water and prevent loss of water through urine.
  - help in regulation of carbohydrate, fat and protein metabolism.
  - induce ovulation in females.
  - cause differentiation of T-lymphocytes. (5)

Q22. Diagrammatically represent a cell in anaphase stage of cell division. Enumerate the features of this stage.

OR

Describe the internal structure of cilia. Support your answer with a well labelled diagram. (5)

Q23. Explain non-cycle photophosphorylation in plants. Why is this process called so?

OR

Explain nodule formation during symbiotic biological nitrogen fixation. (5)