

Five-Year Integrated M.Sc. Examination, 2023

Semester - V

Course: LS-3-5-1

(System Physiology)

Time: Four Hours

Full Marks: 80

Questions are of value as indicated in the margin.

Answer Question No.01 and any Six from the rest.

1. Write short notes on any ten of the following [2x10=20]
 - a) Macrophage
 - b) Afferent neurons
 - c) Structures of the human brain
 - d) Neuron
 - e) Micturition
 - f) Kranz anatomy
 - g) Cryptochrome
 - h) Blue light response in stomatal movement
 - i) Red drop and Emerson enhancement effect
 - j) Absorption and action spectra
 - k) P proteins
 - l) Triple response
 - m) Short distance transport
2. Give a schematic sectional view of the human heart. Explain the process of systemic and pulmonary circulations. [3+7=10]
3. Differentiate between electrical and chemical synapse. Discuss the mechanisms of neurotransmitter release from presynaptic neuron and activation of the postsynaptic neuron. [4+6=10]
4. Draw the structure of a human ear indicating all parts in outer, middle and inner regions. Explain the vestibular system and neural pathways in hearing. [3+(4+3)=10]
5. What is apical dominance? How does GA play a role in the seed germination process? Describe in brief the role of different hormones in plant growth and development. [2+3+5=10]
6. What is the GS-GOGAT pathway? Briefly describe the role of different microorganisms in nitrate assimilation. Describe different pathways of ammonium assimilation. [2+4+4 = 10]
7. Why only sucrose be transported in phloem? Describe the Mass flow hypothesis. Write the importance of phloem loading and unloading in-plant transportation. [2+3+5=10]

8. Briefly describe the carbon fixation mechanism in C4 and CAM plants. [5+5=10]
9. Describe the non-cyclic electron transport mechanism in plant systems with suitable diagrams. [8+2=10]
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