



K26P 0740

Reg. No. :

Name :

IV Semester M.Sc. Degree (CBCSS – OBE – Regular/Supple./Imp.)
Examination, April 2026

(2023 Admission Onwards)

ZOOLOGY

MSZGY04E06 : Insect Physiology

Time : 3 Hours

Max. Marks : 60

PART – A

Answer **any five** of the following. **Each** question carries **3** marks.

1. Define Haemolymph. Identify its primary chemical constituents and describe its physiological role as a circulating fluid.
2. Comment on structure of reproductive systems in insects.
3. Outline the molecular and chemical composition of the insect exoskeleton.
4. Contrast the structural and functional differences between Malpighian tubules and nephrorectal complexes.
5. Describe the specific action and importance of various digestive enzymes in the insect alimentary canal.
6. Define the concept of plastron respiration and provide a representative example of an insect utilizing this mechanism. (5×3=15)

PART – B

Answer **any three** of the following. **Each** question carries **6** marks.

7. Discuss the biochemical pathway of tanning (sclerotisation) and analyze its significance in providing structural integrity to the insect body.

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8. Perform a comparative analysis of the dorsal vessel and accessory pumping organs in maintaining insect hemolymph circulation.
9. Explain the structure and function of photoreceptors in insects.
10. Critically analyze the role of neurosecretory cells in the hierarchical control of the insect endocrine system.
11. Discuss the process of segmentation and appendage formation during insect embryogenesis. (3×6=18)

PART – C

Answer **any three** of the following. **Each** question carries **9** marks.

12. Evaluate the hormonal control of insect moulting and metamorphosis.
13. Provide a comprehensive account of how the insect tracheal system is modified to sustain life in aquatic environments and high-altitude habitats.
14. Explain the neural transmission process in insects and its role in sensory perception.
15. Analyze the diverse roles of pheromones in modulating insect social behavior, mating and inter-individual communication.
16. Examine the biological significance and evolutionary advantages of polyembryony, paedogenesis and viviparity in various insect groups. (3×9=27)