

U.G. 6th Semester Examination - 2025**ZOOLOGY****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : ZOOL-H-DSE-T-06****(Biology of Insecta)****Full Marks : 40****Time : 2½ Hours***The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any five of the following: $2 \times 5 = 10$
- a) Differentiate between saltatorial and natatorial type of insect legs.
 - b) What are halteres? In which order they are found?
 - c) What is trophallaxis? Differentiate between stomodeal and proctodeal trophallaxis.
 - d) Write the role of allelochemicals in deterring insect feeding.
 - e) Differentiate between Apterygota and Pterygota with examples.

[Turn Over]

- f) State the role of corpora allata in insect metamorphosis.
- g) Write the scientific name of major pest of paddy. Write down the damage symptoms caused by this pest.
- h) How does aristate type of antennae differ from capitate type?

2. Answer any **two** of the following: $5 \times 2 = 10$

- a) What is the role of symbiotic microorganisms in digestion of complex food material such as cellulose in insects? $4+1$
- b) Illustrate the various structural components of a typical insect mouth part. Which type of mouthpart is found in sanguinivorous insects? $4+1$
- c) State different castes of termites and their functions in the colony? How is trophallaxis important to maintain the colony? $4+1$
- d) Explain the mechanism of nerve impulse transmission in insects. How do synapses and neurotransmitters function in the insect nervous system? $3+2$

3. Answer any **two** of the following: $10 \times 2 = 20$

- a) What are hepatic caeca? Where it is present? What are the different functions of Peritrophic envelope? State the structural and functional significance of filter chamber found in midgut of insects. Define Kairomones and Synomones with examples. $2+1+2+3+2$
- b) Differentiate between panoistic and meroistic ovarioles. Explain the process of oogenesis in insects? What role do accessory glands play in the reproductive system of female insects? What is the role of spermatheca? $2+4+2+2$
- c) Define ecdysis and apolysis. Write a short note on the neuro-endocrine interplay coordinating the process of moulting and metamorphosis in insects. What is the function of prothoracic gland? $2+6+2$
- d) Describe the structure of a typical insect wing with labelled diagram. Explain the importance of insect wings in flight and locomotion. What is pterostigma? State the importance of wing coupling. $3+3+2+2$