B.Sc. 5th Semester (Honours) Examination, 2023 (CBCS)

Subject : Zoology

Course : DSE-2

(Parasitology)

Time : 2 Hours **Full Marks : 40**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group-A

2×5=10

1. Answer *any five* questions of the following:

(a) What do you mean by biological vector? Give one example.

(b) Name one plant infecting nematode with its pathogenic effect.

(c) What is the role of nurse cell in *Trichinella* biology?

(d) How commensalism is different from parasitism?

(e) What are parasitoids? Give one example.

(f) What are filarial nematodes?

(g) What do you mean by opportunistic parasite? Give one example.

(h) State the difference between monoxenous and heterogenous life cycles in parasites.

Group-B

5×2=10

2. Answer *any two* questions of the following:

(a) What are brood parasites? Provide the scientific name of Hood Mocking Bird. Why it is considered as parasite? 2+1+2

(b) Write a note on African sleeping sickness.

(c) Can gall formation by plant parasitic nematodes be considered as "extended phenotype"? Explain.

(d) Write a note on tick-borne diseases.

Group-C

10×2=20

3. Answer *any two* questions from the following:

(a) Give two examples of cyst nematodes. Where from the term 'cyst' is derived in case of cyst nematodes? Which aspects of cyst nematode biology are different from root-knot nematode biology? How is the anatomy of root around the feeding site of root-knot nematodes different from that of an uninfected root? 2+2+3+3

(b) How does initial interaction of *Leishmania* and neutrophil contribute to parasite establishment? How do *Leishmania* parasites manage to stay alive in the hostile environment like phagolysosomal compartment of macrophages? 4+6

(c) What are the prerequisites for a parasitic mode of life? Summarize the main mechanisms parasites employ to avoid detection. 4+6

(d) Describe the biology, medical importance and control measures of *Xenopsylla* sp. 5+3+2

B.Sc. 5th Semester (Honours) Examination, 2023 (CBCS)

Subject : Zoology

Paper : DSE-2 (OR)

(Biology of Insect)

Time : 2 Hours **Full Marks : 40**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group-A

1. Answer *any five* questions from the following: 2×5=10

(a) Give examples of insects where filiform and plumose antenna are found.

(b) What is meant by haemocoelic insemination?

(c) Explain 'fungus garden'.

(d) Differentiate between couplets and incomplete metamorphosis.

(e) What do you understand by eusocialism?

(f) Mention the scientific name of two medically important insects.

(g) What is spermatheca? Write its function.

(h) State Ehrlick and Raven's theory of coevolution.

Group-B

2. Answer *any two* questions from the following: 5×2=10

(a) Write down the characteristic features of the order Lepidoptera and Coleoptera with example (scientific name). 2½+2½

(b) "Insects are most successful among the invertebrates."— Explain. 5

(c) Describe different types of wing adaptations and modification found in insects. 5

(d) Define mechanical and biological insect vectors. Mention the pathogens carried by each of them. 3+2

Group-C

3. Answer *any two* questions from the following: 10×2=20

(a) Write the scientific name of brown plant hopper. Describe the nature of damage caused by this pest. Write prevention and control measures. Describe their life history with proper figure. 1+2+3+(2½+1½)

(b) With proper diagram, describe the structure of ommatidium and mechanism of image formation. 5+5

Please Turn Over

(c) How do the extracellular and intracellular digestion take place in insects? Describe the role of microbial symbionts in the digestion of insects. 6+4

(d) Write the molecular cascade of the JH hormone action. Briefly describe the role of hormones in insect metamorphosis. 5+5
