



PG (CBCS)  
M.SC. Semester- III Examination, 2023  
ZOOLOGY  
PAPER: ZOO 301  
(ENTOMOLOGY AND ECOTOXICOLOGY)



Full Marks: 40

Time: 2 Hours

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

Write the answer for each unit in separate sheet

ZOO 301.1 ENTOMOLOGY

GROUP-A

1. Answer any **TWO** of the following questions: 2×2=4
- What is peritrophic membrane? Mention its function. 1+1
  - State the function of chloride cells in insects.
  - State the function of luciferin and luciferase.
  - State the chemical nature and empirical formula of chitin.

GROUP-B

2. Answer any **TWO** of the following questions: 2×4=8
- Write a note on filter chamber in insects with suitable diagram.
  - Comment on the role of PBAN in the biochemical synthesis of pheromones.
  - What is pulvinus? Mention its function.
  - Write down the modification of procuticle and epicuticle

GROUP-C

3. Answer any **ONE** of the following questions: 1×8=8
- Elaborate the hormonal control of insect metamorphosis with necessary diagram.  
What are filiform antennae? 7+1
  - Discuss in details the damage symptoms and different types of control measures of any one primary insect pest of cashew. Discuss about the different responses of insects against chemical defense of plants.

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**ZOO 301.2 ECOTOXICOLOGY****GROUP-A**4. Answer any **TWO** of the following questions:

2×2=4

- a) What do you mean by 'molecular handle' in Phase-I reactions? Give one example.
- b) State briefly the toxic effects of PAH. Give one example of PAH.
- c) What are immunotoxicants?
- d) What is universal antidote?

1+1

**GROUP-B**5. Answer any **TWO** of the following questions:

2×4=8

- a) Describe briefly the catalytic cycle of Cytochrome P450 with the help of word diagram. Why CYP 450 is also called 'Mixed function oxidase'?
- b) Using suitable illustration explain quantal dose-response relationship. Mention the characteristics of hormesis with supporting examples.
- c) What is biomagnification? Elaborate it with suitable example.
- d)
  - i) Describe the types of carcinogens on the basis of their mode of action.
  - ii) Write short notes on Minamata disease.

3+1

2+2

2+2

**GROUP-C**6. Answer any **ONE** of the following questions:

1×8=8

- a) Present a scheme of classification of toxins. Write down the basis of formulation of an ideal toxicity rating chart.
- b) What do you mean by biotransformation? Name the factors affecting biotransformation. Briefly describe the Phase I reaction of it.

5+3

2+2+4=8

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