

**Roll No.**

**Total No. of Pages : 02**

**Total No. of Questions : 09**

**B.Sc. (Hons.) Agriculture (Sem.-4)**

## INSECT ECOLOGY AND INTEGRATED PEST MANAGEMENT

**Subject Code : BSAG-404**

**M.Code : 72756**

**Date of Examination : 05-01-2023**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

## SECTION-A

**1. Write short notes on :**

- a) Write brief note on scavengers, weed killers and insect pollinators.
- b) Define toxicology. What are the main sub-branches of toxicology?
- c) Differentiate between carbamate and organo-phosphate groups of pesticides with one example.
- d) Write short note on insecticide formulations available used as spray applications. Give type of formulations of chlorpyrifos, quinalphos, thiamethoxam, oxydemeton methyl?
- e) Define Economic Threshold Level (ETL) and Economic injury level (EIL). What is their role in pest management?
- f) How parasitoids and predators play role in pest management? Give one example in each.
- g) Define the Ecology. Who proposed this term and what are its main sub-divisions?
- h) What is law of population growth? Give mathematical equation for biotic potential.
- i) What are density dependent and density independent factors?
- j) Define Ecosystem. What are its structural components?

## SECTION-B

2. What should be the goals of an IPM programme? Outline the strategies for its effective implementation.
3. How Economic Threshold Level (ETL) plays role in pest management? Give ETLs for major pests in cotton, gram, wheat, rice and mustard crops.
4. Describe chemical, physical, mechanical and cultural control methods for management of borers in maize and sugarcane recommended by PAU, Ludhiana for.
5. What is microbial control? Describe mode of action of *Bacillus thuringiensis* in *Helicoverpa armigera* on cotton? How the Nuclear Polyhedrosis Viruses (NPV) affect the insects?
6. What is mechanical control? Outline five methods for mechanical control of insects. Also list various mechanical traps which are useful for insect control.

## SECTION-C

7. Describe briefly semiochemicals, pheromones, allelochemicals and hormones? What are various hormones produced by endocrine organs in insects and what are advantages and disadvantages of using hormones in pest control?
8. Write briefly the mode of action of organochlorines and organophosphates by giving one example in each? Give acaricidal, management of mites in brinjal, okra and chilli can. Also explain use of pesticides as fumigants in rodents and stored grain pest management.
9. Define natural, physical, mechanical and cultural control. Describe various mechanical and cultural practices for the management of cucurbit fruitfly, rice sterriborers and leaffolder, and the brinjal shoot and fruit borer.

**NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.**