

4. (a) Define the biological method of insect pest control and justify its advantages over chemical control. Discuss the roles of parasitoids, predators, and pathogens with examples. (9)
- (b) Explain the difference between ETL and EIL. How are these two levels used in decision-making for pest control? (6)
5. (a) Discuss the concept, objectives, and importance of Integrated Pest Management (IPM) in agriculture. Prepare a detailed IPM strategy for *Helicoverpa armigera* in pulses. (12)
- (b) Give an account of the damage caused to sugarcane crop due to *Scirpophaga nivella*. (3)
6. (a) Describe identification, habitat, and feeding habits of major mosquito genera (*Anopheles*, *Aedes*, and *Culex*). Elaborate on biological, chemical, cultural, and physical methods for sustainable mosquito control. (10)
- (b) Give a brief account of the different mechanisms of insect resistance in plants with examples. (5)
7. Write short notes on any **three** of the following : (3×5=15)
- (a) Role of insect hormones in pest control.
- (b) Co-evolution of insects and plants.
- (c) Insects of stored products - damage and prevention.
- (d) Sterile Insect Technique (SIT).

(1200)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 10397

K

Unique Paper Code : 2233010020

Name of the Paper : Applied Entomology

Name of the Course : B.Sc. (H) Zoology, (NEP-UGCF)

Semester : VII, DSE-20

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

- Write your Roll No. on the top immediately on receipt of this question paper.
- Attempt **Five** questions in all.
- Question No. 1 is compulsory.
- Draw well labelled diagrams wherever required.

- (a) Define any **five** of the following : (5×1=5)

- | | |
|--------------------------------|--------------|
| (i) Biopesticide | (ii) Larvae |
| (iii) Apiculture | (iv) Ootheca |
| (v) Juvenile Hormone Analogues | |
| (vi) Pest | |

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(b) Differentiate between the following : (Any five) (5×2=10)

- (i) Metamorphosis and Moulting
- (ii) Monophagous pest and Polyphagous pest
- (iii) Chemical control and Biological control
- (iv) Predators and Pdrasitoids
- (v) Vectors and reservoirs
- (vi) Genetic control and Microbial control

(c) Write the damage causing stage and scientific name of the following pests : (Any four) (4×2=8)

- (i) Gram pod borer
- (ii) Pulse beetle
- (iii) Citrus / Lemon butterfly
- (iv) Red pumpkin beetle
- (v) Spotted bollworm

(d) Name the insect vector responsible for transmitting each of the following diseases : (3×1=3)

- (i) Filariasis
- (ii) Plague
- (iii) Chikungunya

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(e) Match the following : (8×0.5=4)

A	B
(i) Honey bee	a. Light traps
(ii) Hemiptera	b. Aluminium phosphide
(iii) Social Insect	c. <i>Leptocorisa acuta</i>
(iv) Grubs	d. Wax
(v) Fumigation	e. Crop rotation
(vi) Physical control	f. Termite
(vii) Cultural control	g. Adult emergence
(viii) Eclosion	h. Coleoptera

2. Describe the identification, life cycle, nature of damage, and control of the following : (7.5,7.5)

(a) *Earias vitella*

(b) *Corcyra cephalonica*

3. (a) Name any two beneficial insects and explain their biology along with their economic significance. (9)

(b) Discuss the role of insects in criminal investigations. Name two major groups of insects/arthropods commonly associated with forensic studies. (6)

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