

**DR. PANJABRAO DESHMUKH KRISHI VIDYAPEETH, AKOLA**  
**SEMESTER END THEORY EXAMINATION**  
**(Model Answer)**

|                       |          |                              |              |          |  |                      |          |                  |
|-----------------------|----------|------------------------------|--------------|----------|--|----------------------|----------|------------------|
| <b>Semester</b>       | <b>:</b> | <b>III (New)</b>             | <b>Term</b>  | <b>:</b> | <b>I</b>   | <b>Academic Year</b> | <b>:</b> | <b>2020-2021</b> |
| <b>Course No</b>      | <b>:</b> | <b>ENTO-232</b>              | <b>Title</b> | <b>:</b> | <b>Insect Ecology and Integrated Pest Management</b> |                      |          |                  |
| <b>Credits</b>        | <b>:</b> | <b>2 (1+1)</b>               |              |          |  |                      |          |                  |
| <b>Day &amp; Date</b> | <b>:</b> | <b>22/01/2021<br/>Friday</b> | <b>Time</b>  | <b>:</b> | <b>12.00-13.00</b>                                   | <b>Total Marks</b>   | <b>:</b> | <b>40</b>        |

- Note:**
1. Solve **ANY FOUR** questions from **SECTION -A**
  2. Solve **ANY SIX** questions from **SECTION -B**
  3. All questions from **SECTION -C** are compulsory
  4. Send the PDF file of answer sheet to the email id of respective course teacher.

**SECTION-A**

(Write the answers in 4-5 sentences only. Each question carries 4 marks)

**Q.1.Enlist Abiotic factors: (2 Marks) describe any one from following (2 Marks)**

**1. Climatic or Weather or Physical factors:**

- a. Temperature
- b. Light
- c. Humidity
- d. Rainfall
- e. Wind / Air currents
- f. Atmospheric Pressure

**2. Geographic or Topographic factors:**

- a. Mountain ranges
- b. Large water bodies

**3. Edaphic or Soil factors:**

- a. Soil type (eg. Clay soil, loamy, sandy etc.)
- b. Soil fertility
- c. Soil structure and texture
- d. Soil drainage

**Q.2.Causes for pest outbreak(4 Marks)**

- 1.Deforestation
- 2.Favourable Weather condition
- 3.Introduction of new crop
4. Introduction of new variety
5. Introduction of new pest
- 6.Improved agronomic practices-spacing, irrigation, fertilizer dose,
- 7.Resurgence of pest
- 8.Lack of storage facility
- 9.Accidently introducing pest
- 10.Destruction of natural enemies
- 11.Extensive and intensive cropping

**Q.3.Mechanisms of HPR (4 Marks)**

**Antixenosis:** (Non preference, Undesirability ie. Avoidance by insects): refers to the resistance mechanism employed by the host plant to deter or reduce colonization by insects.

The plant may deter the insect from colonization, feeding, oviposition or seeking the shelter.

- **Antibiosis** : (Unsuitability: Chemical constituents, affecting the biology of insects)Refers to the adverse effect of host plant on the biology of insects and their progeny infesting.
- **Tolerance** : (Withstanding insect attack)Refers to the ability of the host plant to withstand an insect population sufficient to damage severely the susceptible plants.

**Q. 4. Classify the insecticides based on mode of entry with suitable example (4 marks)**

**Ans.:** Brief descriptionon **a.** Stomach poison (eg. Malathion), **b.** Contact poison (eg. Fenvalerate), **c.** Fumigant (eg. Aluminium phosphide), **d.** Systemic poison (eg. Dimethoate)

**Q5. Different Tools of IPM (2 Marks)**

- I ) Cultural method
- I I) Mechanical method
- III) Biological method
- IV ) Legal method
- V ) Physical method
- VI) Recent trends in pest management
- VII) Chemical method

**Explain any one in brief (2 Marks)**

**SECTION –B**

**(Write the answers in one sentence only. Each question carries 2 marks)**

|             |           |  |
|-------------|-----------|--|
| <b>Q.6)</b> |           | <b>Define the following terms</b>  |
|             | <b>a)</b> | <b>Biological control</b> -The action of parasite, predators or pathogens in maintaining another organisms population density at a lower average than would occur in their absence.  |
|             | <b>b)</b> | <b>Economic Threshold Level (ETL):</b> It is the minimum population density of the pest at which control measure operations should be undertaken to prevent an increasing an increasing pest population from reaching the economic injury level. |
|             | <b>c)</b> | <b>Oligophagous pest:</b> Pest which feed on a related group of crop, especially from the same botanical families eg. Spotted bollworm ( <i>Earias</i> spp.) of cotton also feeding on other malvaceous hosts like okra, hollyhock, ambadi, etc, |
|             | <b>d)</b> | <b>Regular pest:</b> These are the pest which occur most frequently on a crop and have close association with the crop   |

|    |  |
|----|--|
| e) | <b>Insecticide formulation-</b> Incorporation of toxicant into a suitable carrier or solvent, supplementary agents/ adjuvants...             |
| f) | <b>Acaricide:</b> Chemical used to control mites   |
| g) | <b>Ecology-</b> Science dealing with the relationship of organism to their environment <b>OR</b> Study of structure and functions in nature. |

### SECTION –C

(Choose the correct option. Each question carry 1 mark)

Q 7.

|    |   |                                 |
|----|---|---------------------------------|
| 1. | Use of resistant varieties in the IPM is an example of  |                                 |
|    | (a) Biological control  | (b) Legal control               |
|    | <b>(c) Cultural control</b>   | (d) Physical control            |
| 2. | Which of the following is physical control of pest suppression?   |                                 |
|    | (a) Hand picking  | (b) Shaking of plants           |
|    | (c) Wrapping of fruits  | <b>(d) Sun drying of grains</b> |
| 3. | In coconut, the rhinoceros beetle can be picked out from infested holes with the help of crooked hooks made of iron this is a type of |                                 |
|    | (a) Cultural control  | (b) Physical control            |
|    | (c) Chemical control  | <b>(d) Mechanical control</b>   |
| 4. | Sterile Insect Technique (SIT) is developed by  |                                 |
|    | <b>(a) E. F. Knipling</b>   | (b) Rachael Carson              |
|    | (c) Painter   | (d) Earnest Haeckel             |
| 5. | Which insecticide is used as seed treatment for management of sucking pest in cotton  |                                 |
|    | <b>(a) Imidacloprid</b>   | (b) NSKE                        |
|    | (c) Fenvalerate   | (d) Diazinon                    |
| 6. | Pest causing crop loss above 10 per cent is known as  |                                 |
|    | (a) Minor pest  | <b>(b) Major pest</b>           |
|    | (c) Negligible pest   | (d) None of these               |

|     |   |                               |
|-----|---|-------------------------------|
| 7.  | Lady bird beetle is   |                               |
|     | (a) Primary consumer  | <b>(b) Secondary consumer</b> |
|     | (c) Tertiary consumer   | (d) None of these             |
| 8.  | <i>Trichogramma chilonis</i> is   |                               |
|     | (a) Larval parasitoid   | (b) Pupal parasitoid          |
|     | (c) Predator  | <b>(d) Egg parasitoid</b>     |
| 9.  | Green colour triangle on insecticide container represent                        |                               |
|     | (a) Extremely toxic   | (b) Highly toxic              |
|     | (c) Moderately toxic  | <b>(d) Slightly toxic</b>     |
| 10. | Which lure is used in pheromone trap for monitoring American bollworm in cotton |                               |
|     | (a) Leucilure   | <b>(b) Hexalure</b>           |
|     | (c) Vitalure  | (d) Gossyplure                |
| 11. | Atropine is a   |                               |
|     | (a) Repellent   | (b) Antifeedant               |
|     | <b>(c) Antidote</b>   | (d) Pheromone                 |
| 12. | Which one of the following is antifeedant                                       |                               |
|     | (a) DDVP  | (b) Nicotin                   |
|     | (c) Zinc phosphide  | <b>(d) NSKE</b>               |

Signature of Course teacher  
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