

2019

(2nd Semester)

Time : 2 hours

Full Marks : 50

**Answer Q. Nos. 1 to 4 which are compulsory
and any four from Q. Nos. 5 to 10**

*The figures in the right-hand margin indicate marks
Candidates are required to answer in their own words
as far as practicable*

(FUNDAMENTALS OF ENTOMOLOGY)

1. Choose the *correct* answer : 1 × 10
- (a) Insect are poikilothermic/endothermic/
homeothermic/none.
 - (b) The second segment of antennae is scape/
flagellum/pedicel/none.
 - (c) Thrips having sucking type/rasping and
sucking/piercing and sucking/siphoning type
mouth.

(2)

- (d) NCIPM is situated at New Delhi/Bangalore/Mumbai/Faridabad.
 - (e) Halter is characteristic feature of order Coleoptera/Lepidoptera/Diptera/Isoptera.
 - (f) Pest management practices should be applied at ETL/GEP/EIL/damage boundary.
 - (g) Peritrophic membrane is absent in solid feeders/sap feeders/wood borers/none.
 - (h) Father of Insect Physiology : R.H. Painter/W. B. Wigglesworth / R. E. Snodgrass/A.D. Imms.
 - (i) Insect has evolved resistance to B.T. in open field population is Pink bollworm/Diamond back moth/spotted bollworm/none.
 - (j) Both digestion and absorption take place in foregut/midgut/hindgut/none.
2. Explain the following (Answer any six) : 1×6
- (a) Emulsifiable concentrate (EC)
 - (b) Define IPM

(3)

- (c) Key pest
 - (d) Environmental resistance
 - (e) Filter chamber
 - (f) Trichogrammatidae
 - (g) Antifeedant.
3. Differentiate the following (Answer any five) : 2×5
- (a) Antixenosis and Antibiosis
 - (b) Predator and Parasitoid
 - (c) Exopterygota and Endopterygota
 - (d) ETL and EIL
 - (e) Elytra and Hemelytra
 - (f) Complete and Incomplete metamorphosis
 - (g) Vertical and Horizontal resistance.
4. State *True* (T) or *False* (F) in respect of the following statements : $\frac{1}{2} \times 8$
- (a) Honeybee belongs to order diptera.
 - (b) Principle of Insect Morphology is written by R.E. Snodgrass.

- (c) Preying mantids belongs to order dictyoptera.
 - (d) Tympanum is the hearing organs of the insect.
 - (e) Legs bearing segments of the thorax collectively known as pterothorax in insects.
 - (f) One L.E. for *Helicoverpa armigera* is 6×10^9 PIB.
 - (g) Cornicles is the characteristic feature of aphids.
 - (h) Tree top disease is the peculiar symptom of the entomopathogenic bacteria.
5. Describe the characteristics of the order coleoptera. Write the economic importance of this order. 5
 6. Write briefly about pest surveillance and forecasting. How it will be used full in IPM ? 5
 7. Classify the insecticides based on their origin, mode of entry and mode of action with examples. Write down the importance and limitation of chemical method of pest control. 5

8. Give an illustrative account of digestive system in insects. Describe the physiology of digestion in insects. 5
9. Define biological control. How does it differ from natural control ? What are the major techniques employed in biological control programme ? 5
10. Define population and mention its attributes. How biotic factors influence the population fluctuation of insects ? 5