Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

B.Voc. (Agriculture) (Sem.–2)

FUNDAMENTALS OF INSECT MORPHOLOGY AND SYSTEMATICS

Subject Code : BVAG203-18

M.Code : 79597

Date of Examination : 07-07-22

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 briefly :

a) Define entomology. What is an insect, define it?

b) Name the first Entomologist to the Government of India. When the IARI, ICAR and Entomological Society of India, established?

c) Name father's of modern applied entomology and modern beekeeping in India. What are five journals dealing with entomological research, being published in India?

d) When 1st edition of *"Systema naturae"* published. Why its l0th edition famous?,

e) Define species, sub-species, genus and family.

f) Define wing veriation. What are major modifications of insect wings?

g) Give role of antennae as chemoreceptors. What types of antennae are present in honeybees, ants, cabbage butterfly and housefly?

h) How cuticle is formed? Briefly explain sub-division of cuticle.

i) Briefly, describe piercing-sucking and chewing lapping mouth parts with one example?

j) List various male reproductive organs in insects. Describe briefly any one organ.

SECTION-B

2. Define systematics. Give objectives of insect classification. How systematics does differ from taxonomy, classification and identification?

3. Describe the process of cuticle expansion and the hormones involved in cuticle production. What are functions of insect cuticle?

4. Explain various modifications of insect mouth parts giving one example.

5. Define metamorphosis. Based on the extent of changes in metamorphosis, how the insects are classified?

6. Describe female reproductive organs in insects. How many types of ovarioles are found in insects?

SECTION-C

7. What are wing modifications in insects? Giving short note on wing coupling and its significance, describe various types of wing coupling mechanisms in insects.

8. Draw morphological insect body structure which might be closest to the generalized form, i.e. a grasshopper. Also give a schematic section of typical insect integument, showing the various layers.

9. Give brief about insect sensory system. What are the methods for detecting chemical stimuli in insects and how temperature and humidity are perceived in insects?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.