

**M.Sc. (Ag.) Semester-I Examination, 2016**

**Subject: Plant Protection**

**Course No.: AEN-501**

**Insect Morphology**

**Time: Three Hours**

**Full Marks: 50**

*Questions are of value as indicated in the margin*

**Answer any five questions**

1. State briefly the sclerites and sutures present in a general insect head. How structure and function of mouthparts are adapted for sucking up fluids differ in bugs and mosquitoes? 5+5=10
2. What are the articular sclerites of insect wing? Narrate with necessary diagram. Describe briefly the basic veins of a hypothetical wing venation with diagram. 5+5=10
3. How many segments are present in an insect abdomen? Describe briefly the abdominal appendages in adult insects with their modifications and functions. 2+4+4=10
4. Describe the structure of insect body wall with a labelled diagram. Briefly discuss the different cuticular processes and appendages. 5+5=10
5. Write notes on **any two** of the following : 5×2=10
  - a) Structure and modification of insect leg
  - b) Function of body wall
  - c) Wing coupling mechanism
  - d) Types of antenna
6. Answer the following in brief (**any four**) : 2.5×4=10
  - a) Tentorium in insect head.
  - b) How Collembola jumps?
  - c) Describe different sulci in the thoracic region.
  - d) What are the main features that distinguish the true Insecta from other Hexapoda?
  - e) Visual sense organs in insects.
  - f) Why morphological studies in Insects is necessary?
7. Write short notes on **any four** of the following : 2.5×4=10
  - a) Pleural apophysis
  - b) Paranotal theory of wing development
  - c) Modification of insect wings
  - d) Pollen basket
  - e) Prolegs
  - f) Physical colouration of insect cuticle
8. Distinguish the following (**any four**) : 2.5×4=10
  - a) Suture and sulcus
  - b) Anamorphic and epimorphic development
  - c) Epiproct and paraproct
  - d) Tergum and sternum
  - e) Haltere and pseudohaltere
  - f) Apodeme and Apophysis