

**MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE**  
**SEMESTER END EXAMINATION**

**B.Sc. (Agri.)**

<b>Semester</b> : III (New)	<b>Term</b> : I	<b>Academic Year</b> : 2017-18
<b>Course No.</b> : ENTO 231	<b>Title</b> : Insect Morphology and Systematics	
<b>Credits</b> : 3(2+1)		
<b>Day &amp; Date</b> : Monday, 20.11.2017	<b>Time</b> : 9.00 to 12.00	<b>Total Marks</b> : 80

- Note :**
1. Solve **ANY EIGHT** questions from **SECTION "A"**.
  2. All questions from **SECTION "B"** are compulsory.
  3. All questions carry equal marks.
  4. Draw neat diagrams wherever necessary.

**SECTION "A"**

- Q.1 Define metamorphosis and describe its types with examples.
- Q.2 Describe digestive system of cockroach with labeled diagram.
- Q.3 Describe mouth parts of honey bee with labeled diagram.
- Q.4 Explain modification in insect antenna with suitable examples.
- Q.5 Describe wing modifications in insects with examples.
- Q.6 Describe structure of insect integument with labeled figure.
- Q.7 Explain male reproductive system of insect with labeled diagram.
- Q.8 Explain central nervous system of insect with labeled diagram.
- Q.9 Explain circulatory system of insect.
- Q.10 Write short notes (Any Two).
  - a) Structure of typical insect leg
  - b) Sense organs
  - c) Malpighian tubules
  - d) Order Lepidoptera

**SECTION "B"**

- Q.11 Define the following terms.
 

1) Sclerite	2) Ecdysis	3) Ovipositor	4) Spiracle
5) Systematics	6) Taxonomy	7) Entomology	8) Morphology
- Q.12 Do as directed.
  - 1) State the head position in red cotton bug.
  - 2) State the order of mustard sawfly.
  - 3) Name of minute end tube of tracheal respiratory system.
  - 4) State the phylum of insect.
  - 5) \_\_\_\_\_ is the endoskeleton present in insect head (Fill in the black).
  - 6) Hamulate/frenate type of wing coupling apparatus is observed in honey bees. (Choose the correct word)
  - 7) Name the location of epicranial suture.
  - 8) Apodus larvae possess abdominal legs (State true or false).

