

**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> : 2012-13
<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, 29.10.2012	<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 a) Enlist various reasons for insect dominance. (4)  
b) Give contribution of following scientists in the field of Entomology. (4)  
i) V.B.Wigglesworth ii) Carlous Linnaeus  
iii) S.Pradhan iv) Hemsingh Pruthi
- Q.2 a) Enlist different classes of Phylum Arthropoda with suitable examples. (3)  
b) State importance characteristics of Class Insecta. (5)
- Q.3 a) Draw well labeled diagram of insect integument. (4)  
b) Mention different functions of cuticle. (4)
- Q.4 Draw well labeled diagram of insect head capsule and enlist various sclerites and sutures of head capsule. (8)
- Q.5 a) Enumerate various modes of reproduction in insects with suitable example. (3)  
b) Explain with suitable diagram male reproductive system in insect. (5)
- Q.6 a) Give the distinguishing characteristics of Order Coleoptera and state any four agriculturally important families of Coleoptera with insect example. (6)  
b) Place the following insects into their respective orders. (2)  
i) Mustard sawfly ii) Lemon butterfly  
iii) Fruit fly iv) Whitefly
- Q.7 a) Give an account of binomial nomenclature with general rules used in insect classification. (5)  
b) Give systematic position of Indian Honey Bee (*Apis indica*) in animal kingdom. (3)
- Q.8 Differentiate between. (Any Two) (8)  
1) Apterygota and Pterygota  
2) Caelifera and Ensifera  
3) True legs and Prolegs
- Q.9 a) Describe various types of metamorphosis in insect with suitable examples. (6)  
b) Give the significance of metamorphosis in insects. (2)

(P.T.O.)

- Q.10 a) Explain hypothetical insect wing venation constructed by Comstock and Needham with a neat sketch. (5)  
b) Give wing modifications in insects with suitable examples. (3)

SECTION "B"

- Q.11 Define the following terms. (8)

- |              |             |
|--------------|-------------|
| 1) Taenidia  | 5) Diapause |
| 2) Ecdysis   | 6) Taxon    |
| 3) Propodeum | 7) Species  |
| 4) Cervix    | 8) Synapse  |

- Q.12 Do as directed. (8)

- 1) Antennae are absent in Order \_\_\_\_\_. (Fill in the blank)
- 2) Give full form of NBAII.
- 3) Mention the author (s) of the book 'Insect Physiology and Anatomy'.
- 4) Starting from basal segment, arrange the following segments in proper order  
Tarsus, Coxa, Femur, Trochanter, Tibia.
- 5) In House fly the functional mouth parts are made of **labrum / maxillae / labium**. (Select proper option)
- 6) Peritrophic membrane is present in **solid feeding / liquid feeding** insects  
(Select proper option)
- 7) All the spiracles are non-functional in **apneustic / hemipneustic / Holopneustic** type of respiratory system. (Select proper option)
- 8) Physogastry condition is present in \_\_\_\_\_ (Fill in the blank.)

