

**KERALA AGRICULTURAL UNIVERSITY**  
**B.Sc. (Hons.) Agriculture – 2008 Admission - 1st Semester**  
**Final Examination – March/April 2009**

Title : Ento 1101

Max. marks: 80

Course: Insect Morphology, Physiology and Systematics (2+1)

Time : 3 hours

- I A Fill in the blanks** 4
1. The main excretory product in terrestrial insect is \_\_\_\_\_.
  2. The hexagonal units of compound eye are known as \_\_\_\_\_.
  3. The body of mite is divided in to \_\_\_\_\_ and \_\_\_\_\_.
  4. Anal angle is formed between \_\_\_\_\_ and \_\_\_\_\_ margins of the wing.
  5. Taenidia are thread like spiral thickenings present in \_\_\_\_\_.
  6. The forceps like paired appendages present in earwig at the end of abdomen is known as \_\_\_\_\_.
- B Match the following** 3
- | GROUP - A                   | GROUP - B           |
|-----------------------------|---------------------|
| ( a ) Johnston's organ      | 1. Lady bird beetle |
| ( b ) Predator              | 2. Lemon butterfly  |
| ( c ) Hamuli                | 3. Blister beetle   |
| ( d ) Hypermetamorphosis    | 4. Honey bee        |
| ( e ) Tympanum              | 5. Male mosquito    |
| ( f ) Siphoning mouth parts | 6. Grass hopper     |
- C State whether the following statements are TRUE or FALSE** 3
1. Hypodermis contains cement layer
  2. Intersegmental region between head and thorax is known as cervix
  3. The blood enters in heart during diastole
  4. Pyloric valve is located between foregut and midgut
  5. All the spiracles are functional in apneustic type respiration
  6. Millipeds belongs to class crustacea
- II A Define/Explain the following terms (Any five)** 5
- |               |                     |
|---------------|---------------------|
| 1. Taxonomy   | 2. Pterothorax      |
| 3. Haemocoel  | 4. Somite           |
| 5. Epicranium | 6. Suture           |
| 7. Stadium    | 8. Plantulae        |
| 9. Ostia      | 10. Hermaphroditism |
- B Classify the following insects into their Natural Order giving Three important characters** 5
- |               |              |              |
|---------------|--------------|--------------|
| 1. Fruit fly  | 2. Butterfly | 3. Dragonfly |
| 4. Silverfish | 5. Flea      |              |

**III**

**Answer the following (ANY TEN)**

**20**

1. What is neuron? Classify the various types of neuron based on their structure and function.
2. Insect blood
3. Structure of Spiracles
4. Malpighian tubules
5. Enlist various types of antenna with giving suitable examples.
6. International rules of zoological nomenclature.
7. What is the significance of cuticle to the insect?
8. Describe the structure of chewing type mouth parts of cockroach
9. How insects are our friends?
10. How house fly is able to walk on smooth surface?
11. Female reproductive system of insect
12. Describe the route of blood circulation in insect.

**IV**

**Write short notes on the following (ANY FOUR)**

**20**

1. What is moulting? Why moulting is necessary? Explain the process of moulting and formation of new cuticle in insect with appropriate diagram.
2. Describe the structure of nervous system with the help of neat and clean diagram.
3. Classify the respiratory system on the basis of number and arrangement of spiracles.
4. Enlist various types of insect mouth parts with suitable examples. Describe in detail the structure of mouth parts found in red cotton bug.
5. Enlist various types of wing coupling apparatus and describe the structure of jugate type wing coupling.
6. Draw a sketch of typical insect leg and label it. Enlist various types of legs found in insects giving suitable examples.

**V**

**Write an essay on the following (ANY TWO)**

**20**

1. Describe the general structure of digestive system of insect in detail with line diagram.
2. Draw a labeled diagram of insect body wall / integument and describe the function of each parts.
3. Discuss the various factors responsible for the dominance of insect in animal kingdom.

@@@@@@@@@@@@@@@@