

**M.Sc. ZOOLOGY**  
**THIRD SEMESTER (SPECIAL REPEAT)**  
**ENTOMOLOGY: INSECT PHYSIOLOGY &**  
**ECONOMIC ENTOMOLOGY-I**  
**MSZ-303 D**

**SET**  
**A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

( Objective )

Choose the correct answer from the following:

1 × 20 = 20

1. The hollow cuticular invaginated process is called:  
a. Apodemes  
b. Apomixis  
c. Apophysis  
d. Hypophysis
2. Paper factor is:  
a. Ecdysone mimic  
b. Juvenile hormone mimic  
c. Bursicon  
d. Prostaglandins
3. Alary muscles of insect are responsible for:  
a. Movement of leg  
b. Contraction of heart  
c. Expansion of wings  
d. Oviposition
4. Sound produced by wing vibration is found in:  
a. Butterfly  
b. Mosquito  
c. Cockroach  
d. Dragon fly
5. Which one of the following is a holometabolous insect?  
a. Silkworm  
b. Grasshopper  
c. Cockroach  
d. Silverfish
6. Types of egg found in insect:  
a. Alecithal  
b. Microlecithal  
c. Centrolecithal  
d. Isolecithal
7. Which of the following insect is ametabolous type?  
a. Grasshopper  
b. Honey bee  
c. Silverfish  
d. Moth
8. Juvenile hormone is secreted by:  
a. Corpora cardiaca  
b. Corpora allata  
c. Neurosecretory cells of the brain  
d. Prothoracic gland
9. In insect, Johnston's organ is highly specialized:  
a. Trichoid sensilla  
b. Campaniform sensilla  
c. Basiconic sensilla  
d. Chordotonal organ
10. Thoracic muscles responsible for leg movements of insect are:  
a. Longitudinal muscles  
b. Tergopleural muscles  
c. Dorsoventral muscles  
d. Sternocoxal muscles

11. According to Labral Segmental Theory, Procephalon is consist of:
  - a. Labral, Preantennal, and Antennal
  - b. Labral, Preantennal, Antennal and Intercalary
  - c. Mandibular, Maxillary and Labial
  - d. Intercalary, Mandibular, Maxillary and Labial
12. The Pilose antennae are found in:
  - a. Odonata
  - b. Termites
  - c. Mosquito
  - d. Moth
13. The principal piercing device in Mosquito PSM is:
  - a. Maxillae
  - b. Labrum
  - c. Labium
  - d. Mandible
14. In the higher insects like Diptera a spine or bristle like structure found in between the terminal claws known as:
  - a. Arolium
  - b. Empodium
  - c. Auxlium
  - d. Pulvillus
15. In the true lice, the type of legs are:
  - a. Saltatorial
  - b. Natatorial
  - c. Clasporial
  - d. Fossorial
16. The male genital segment/segments in insects is/are:
  - a. VIII
  - b. VIII & IX
  - c. IX
  - d. IX & X
17. The distal part of the prolegs of caterpillar is known as:
  - a. Planta
  - b. Aedeagus
  - c. Phallobase
  - d. Coxa
18. A pair of small club-shaped organs on the body of two Orders of flying insects that provide information about body rotations during flight is known as:
  - a. Prolegs
  - b. Proantennae
  - c. Elytra
  - d. Halteres
19. The space between two Z line of a skeletal muscle fibre is called:
  - a. Sarcoplasm
  - b. Sarcolemma
  - c. Sarcoplasmic reticulum
  - d. Sarcomere
20. Obligatory diapauses is most often associated with:
  - a. Polyphagus insects
  - b. Monophagus insects
  - c. Multivoltine insect
  - d. Univoltine insect

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**( Descriptive )**

Time : 2 hr. 30 mins.

Marks : 50

[ Answer question no.1 & any four (4) from the rest ]

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|--|----------|
| 1. Describe the structure and functions of compound eye of insect.   | 8+2=10   |
| 2. What is metamorphosis? Briefly describe how hormones regulate metamorphosis in insects.                                       | 2+8=10   |
| 3. Describe the different types antennae found in insects with suitable diagrams.  | 10       |
| 4. Describe the early embryonic development of insect.   | 10       |
| 5. Describe the male and female Genitalia of Insects with suitable diagrams.   | 10       |
| 6. Describe the different types of wing venation of insects on the basis of morphological characteristic with suitable diagrams. | 10       |
| 7. Draw a diagram of insect integument and explain it. What are the functions of insect integument?                              | 3+5+2=10 |
| 8. Write short notes on: ( <i>any two</i> )  | 5+5=10   |
| a) Halteres  |          |
| b) Pheromone in insect   |          |
| c) Ultrastructure of skeletal muscles  |          |

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