

**M.Sc. ZOOLOGY**  
**FOURTH SEMESTER (SPECIAL REPEAT)**  
**ENTOMOLOGY II: INSECT PHYSIOLOGY & ECONOMIC ENTOMOLOGY**  
**MSZ-402 D**

(Use Separate Answer Scripts for Objective & Descriptive)

Duration : 3 hrs.

Full Marks : 70

Time : 20 min.

( PART-A : Objective )

Marks : 20

*Choose the correct answer from the following:*

*1×20=20*

1. Pyloric valve found in between-
  - a. Crop and Proventriculus
  - b. Foregut and mid-gut
  - c. Midgut and Hindgut
  - d. Hindgut and Rectum
2. The major proteases of Endopeptidases is-
  - a. Serine Proteases
  - b. SH-Proteases
  - c. Carboxyl Proteases
  - d. Amino Proteases
3. Cocoonase of silkworm moth found in-
  - a. Maxilla
  - b. Labium
  - c. Labrum
  - d. Salivary gland
4. In a tracheal system, when all ten pairs of functional spiracle exist, called-
  - a. Holopneustic
  - b. Hemipneustic
  - c. Peripneustic
  - d. None of these
5. In the immature forms of aquatic insects, the spiracle remain closed and absorption of oxygen from the surrounding water is carried out by specially developed integumentary structures, the gills, etc. This type of tracheal system is called-
  - a. Open tracheal system
  - b. Closed tracheal system
  - c. Aquatic tracheal system
  - d. Terrestrial tracheal system
6. In some insects, the distal end of the malpighian tubules is closely associated or inserted into the rectum forming-
  - a. Basic Nephridial System
  - b. Cryptonephridial system
  - c. Both Basic and Cryptonephridial system
  - d. None of these
7. The spiracles bear two external openings which are secondarily developed while the primary atrial orifice is closed called-
  - a. Atriate Spiracle
  - b. Bichambered Spiracle
  - c. Biferous spiracle
  - d. Multififerous spiracle
8. Gaseous poisons causing effective death of insects are called-
  - a. Organophosphate compound
  - b. Carbamate
  - c. Chlorinated hydrocarbon
  - d. Fumigation

9. Soil inhabiting pest can be controlled by-
- a. Biological methods
  - b. Physical method
  - c. Cultural method
  - d. Sterilizing method
10. The ions involved in transmission of nerve impulse are-
- a. Calcium
  - b. Sodium
  - c. Magnesium
  - d. Sulphur
11. Central nervous system of insect comprises-
- a. Brain and thoracic ganglia
  - b. Brain and ventral nerve cord
  - c. Brain and corpora cardiaca
  - d. Brain and peripheral nerve
12. *Dinoderus* beetle attack bamboo at-
- a. Matured stage
  - b. Early stage
  - c. Post harvesting stage
  - d. Flowering stage
13. The forensic insect that appear first at the site of a corpse-
- a. Blow fly
  - b. Rove beetle
  - c. Tineid moth
  - d. Ant
14. Forensic entomology is primarily associated with-
- a. Detection of death
  - b. Location of an incident
  - c. Time of infliction of wound
  - d. All of the above
15. Circulation of hemolymph in appendages of insect is done by-
- a. Phagocytic organ
  - b. Pulsatile organ
  - c. Dorsal vessel
  - d. Ostia
16. Toll in insect is a-
- a. Proteolytic enzyme
  - b. Pattern Recognition Receptor
  - c. Transmembrane protein
  - d. Hormone
17. Insect antimicrobial peptide is secreted by-
- a. Fatbody
  - b. Plasmatocyte
  - c. Prohemocyte
  - d. Epidermis
18. Viviparity is seen in-
- a. *Musca*
  - b. *Glossina*
  - c. *Aedes*
  - d. *Culex*
19. In honey bee fertilized eggs produce-
- a. Worker
  - b. Queen
  - c. Drone
  - d. Both a and b
20. In testis all gametes undergoing a particular stage of spermatogenesis are often grouped together form-
- a. Cyst
  - b. Sperm bundle
  - c. Scrotum
  - d. Ectadenia

**PART-B : Descriptive**

Time : 2 hrs. 40 min.

Marks : 50

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

1. Write the chemical compositions of insect haemolymph. Add a note on accessory pulsatile organs. 7+3=10
2. Describe the microanatomy of insect brain. 10
3. What are the open and closed tracheal System? Describe the anatomical organization of tracheal system in insects. 2+8=10
4. Describe the Mechanism of Excretion of Insects. 10
5. Write about different types of ovarioles found in insect with labeled diagram. 7+3=10
6. Write the mechanism of blood circulation in insect. Add a note on chemical composition of hemolymph. 5+5=10
7. What is vitellogenesis? Describe different types of insect ovarioles with suitable diagram. 2+8=10
8. Write short note 5×2=10
  - a. Basic Nephridial system and cryptonephridial system
  - b. Malpighian tubules

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