

M.Sc. ZOOLOGY
Third Semester
ENTOMOLOGY
(MSZ – 303 D)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20
Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any four from Question no. 2 to 8
Question no. 1 is compulsory.

1. Describe the structure of egg with a labelled diagram. Discuss formation of zygote, blastoderm formation, formation of germ band, gastrulation and blastokinesis. (10)
2. (a) Describe the mouth parts of a female mosquito with a well labeled diagram and state the feeding mechanism. (6)
(b) Write shortly on Evolution of mouth parts. (4)
3. (a) Describe the structure of Insect Integument with a well labeled diagram. (7)
(b) Mention important functions of Integument. (3)
4. (a) Describe the structure of compound eye. (6)
(b) Describe the structure of tactile hair and Chordatonalsensilla. (2+2=4)
5. (a) Describe the basic structure of muscle. (7)
(b) Discuss functional differences between synchronous and asynchronous muscle. (3)
6. (a) Discuss hormonal control of metamorphosis in Holometabolus insects. (6)
(b) Discuss the role of JH in reproduction of female insect. (4)
7. (a) What are different cephalic glands in insects. State their functions. (5)
(b) Discuss functions of pheromones and allomones. (5)

8. (a) Write salient features of any 4 holometabolus orders with scientific names of at least two insects representing them. (6)

(b) Write shortly on phylogeny of Mantophasmatodea. (4)

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Duration: 20 minutes

Marks – 20

(PART A - Objective Type)

I. Tick the correct answer:

1×7=7

1. New cuticle is secreted by
(a) epidermal cells (b) Gland cells
(c) basement membrane (d) Hemocytes
2. Chitin is synthesized from
(a) Trehalose (b) Fructose
(c) Amino acids (d) Fatty acids
3. Sarcomere contain
(a) Actin (b) Myosin
(c) Both actin and myosin (d) Actin, myosin and other proteins
4. Visual receptors in insects are
(a) Compound eye and Ocelli (b) Compound eye, ocelli and stemmata
(c) Compound eye and stemmata (d) Ocelli and stemmata
5. Larval diapause is controlled by
(a) Diapause hormone (b) Continuous secretion of JH
(c) Absence of JH (d) Absence of PTTH
6. *Periplaneta* belongs to order
(a) Orthoptera (b) Dictyoptera
(c) Dermaptera (d) None of the above
7. Allomones are
(a) Defensive secretion and benefit the producer.
(b) Intraspecific agents and benefit the producer.
(c) Intraspecific agents and benefit the receiver.
(d) Intraspecific agents harmful to receiver.

II. Fill in the blanks:

1×8=8

1. The mouth part in female *Anopheles* inserted into the skin of host is

.....

2. *Aedes aegypti* belongs to order.....
3. Hormone responsible for hardening and darkening of cuticle is
4. *Lepisma* belong to order.....
5. Principal hormone controlling carbohydrate metabolism is.....
6. Hormone responsible for lipid mobilization is.....
7. Vitelline membrane is found below the
8. Anatrepsis and ketatrepsis are 2 phases of

III. Write true or false:

1×5=5

1. All insects belonging to order Collembola and Diplura are wingless.
2. In the larval stages and wingless insects pro, meso and metathorax are not distinct.
3. Shedding of old cuticle is called Apolysis.
4. Separation of old cuticle from epidermal cells is Ecdysis.
5. Pheromones are usually detected by Olfactory receptors.
