

M.Sc. ZOOLOGY
Fourth Semester
PHYSIOLOGY, ECONOMIC ENTOMOLOGY
& INSECT ECOLOGY
(MSZ – 402 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 damaged caused and control measures of any two pests: (5+5=10)
(i) *Dysdercus singulatus* (ii) *Sitophilus oryzae* (iii) *Tribolium castaneum*
2. What are different types of mode of transmission of disease by insects? Explain with example. (8+2=10)
3. What is vitellogenesis? Write a note on hormonal regulation of vitellogenesis. (2+8=10)
4. What are the excretory organs of insect? Write briefly about mechanism of excretion in insects. (5+5=10)
5. Describe the mechanism of Digestion in insets. (10)
6. What is haemogram? What are the different types of haemocytes found in insects? (2+8=10)
7. Describe the structure of spiracle in Insects. Explain how an aquatic insect takes air from atmosphere? (5+5=10)
8. Describe the principles and integrated tactics of Integrated Pest management (IPM). (5+5=10)

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Duration: 20 minutes

Marks – 20

(PART A - Objective Type)

I. Choose the correct answer:

1×20=20

- i) The midgut opens into the hindgut through the
(a) Cardiac valve
(b) Pyloric valve
(c) Gizzard
(d) Crop
- ii) Filter chamber form due to anterior part of hindgut makes close contact with hind part of oesophagus (foregut) called
(a) Membranicidae
(b) Psyllidae
(c) Cicadoidae
(d) Coccidae
- iii) Salivary gland of larvae of secrete the proteins fibroin and sericin.
(a) Orthoptera
(b) Coleoptera
(c) Hemiptera
(d) Lepidoptera
- iv) Which is not included in male reproductive system?
(a) Spermatophore
(b) Sperm sac
(c) Spermatheca
(d) Spermatid
- v) Panoistic ovarioles lack
(a) Nutritive cell
(b) Pedicel
(c) Terminal filament
(d) Oviduct
- vi) During early vitellogenic stage Calmodulin is synthesized by
(a) Follicle cells
(b) Terminal oocyte
(c) Fatbody
(d) Trophocytes
- vii) Nephrocytes are associated with
(a) Excretory system
(b) Circulatory system
(c) Nervous system
(d) Immune system
- viii) Malpighian tubules develop at the junction of
(a) Foregut & Midgut
(b) Midgut & Hindgut
(c) Foregut & Hindgut
(d) None
- ix) Which of the following is a rice pest?
(a) *Hieroglyphus banion*
(b) *Dysdercus cingulatus*
(c) *Pieris brassicae*
(d) *Heleopeltis theivora*
- x) *Simulium* is
(a) Black fly
(b) Sand fly
(c) House fly
(d) Tsetse fly
- xi) Respiratory System of aquatic insects possesses
(a) Open type
(b) Closed type
(c) Both open or closed
(d) either open or closed
- xii) The total haemocyte count per cubic mm along with the differential haemocyte count providing relative numbers of different types of haemocytes in random samples, is known as
(a) haemocyte number
(b) haemocyte volume
(c) haemogram
(d) hamomass
- xiii) Spiracles of thoracic region present in
(a) Only Prothorax
(b) Pro-thorax & Mesothorax
(c) Mesothorax & Metathorax
(d) Only Metathorax
- xiv) The distal end of the malpighian tubules is closely associated with the rectum in
(a) Basic Nephridial System
(b) Cryptonephridial System
(c) Both Basic Nephridial and Cryptonephridial system.
(d) At larval stage in basic nephridial and at adult cryptonephridial system.

- xv) *Trogoderma granarium* is
 (a) Jute Pest
 (b) Cotton pest
 (c) Vegetable pest
 (d) Stored grain pest
- xvi) The multipolar neurons are mostly confined to the
 (a) frontal ganglion
 (b) hypocerebral ganglion
 (c) both frontal and hypocerebral ganglion
 (d) none
- xvii) First ganglion of central nervous system is
 (a) Prothoracic ganglion
 (b) Sub oesophageal ganglion
 (c) Hypocerebral ganglion
 (d) Frontal ganglion
- xviii) Which one is cotton pest?
 (a) *Earias vitella*
 (b) *Hispa armigera*
 (c) *Tribolium castaneum*
 (d) *Helopeltis atonii*
- xix) *Glossina palpalis* causes
 (a) Gambian Sleeping Sickness
 (b) Rhodesian Sleeping Sickness
 (c) Both Gambian Sleeping Sickness and Rhodesian Sleeping Sickness.
 (d) Initially Gambian and at later stage Rhodesian Sleeping Sickness.
- xx) Insects have
 (a) Innate immunity
 (b) Acquired immunity
 (c) Both a and b
 (d) None of the above



University of Science and Technology, Meghalaya

Date Stamp: _____

SESSION: 2016-17			
COURSE _____ PAPER Code: _____			
NAME OF THE PAPER: _____			
SEMESTER _____			
Instructions to Candidates		For Objective Type Questions	
<ol style="list-style-type: none"> This answer booklet has 4 pages. Please check before writing whether it is complete or in good condition. Do not write your name anywhere in the answer booklet. Write legibly on both sides of the paper You may use some space for any rough notes or calculation on the answer booklet if you need. These rough notes, calculations must be scored out before submitting the answer booklet. Do not bring any book or loose paper in the examination hall. Do not tear any page from the answer booklet. Do not write anything on the question paper or blotting paper or any pieces of paper while you are in the examination hall. Any act of indiscipline or misbehavior in the examination hall will result in your expulsion. No examinee is allowed to leave the examination hall until 30 minutes lapse after the commencement of the examination. Additional answer sheet will be supplied after the main answer booklet is completed. 	Page No.	Marks	
	Total		
For Descriptive Type Questions			
Question No.	Marks		
	Total		
	Grand Total		

Session: 2016-17

Course _____

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