

BINDURA UNIVERSITY OF SCIENCE EDUCATION  
FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE  
DEPARTMENT: NATURAL RESOURCES

COURSE CODE AGC120 (2): INTRODUCTION TO ENTOMOLOGY AND PARASITOLOGY

DURATION: 2 HOURS

TOTAL MARKS: 70

INSTRUCTIONS TO CANDIDATES

JUN 2023

Answer *Three* questions out of the following *Five* questions. You must answer question *One* from Section A and any *Two* questions from Section B.

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SECTION A

1. a) The following are multiple choice questions on entomology. Each question carries **one mark**.
  - i. Insects belong to which Phylum?
    - A. Myriapoda
    - B. Arthropoda
    - C. Insectapoda
    - D. Insecta
  - ii. \_\_\_\_\_ is the tagmata specialized for respiration and hearing:
    - A. Head
    - B. Thorax
    - C. Abdomen
    - D. Thorax and Abdomen
  - iii. Insect wings are attached on the \_\_\_\_\_ and the \_\_\_\_\_.
    - A. Prothorax and mesothorax
    - B. Mesothorax and metathorax
    - C. Prothorax and Metathorax
    - D. Only on the mesothorax
  - iv. Which of the following is the correct order of an insect leg parts?
    - A. Trochanter, Tibia, Femur, Tarsus, Claw
    - B. Trochanter, Tarsus, Femur, Tibia, Claw
    - C. Femur, Tibia, Trochanter, Tarsus, Claw
    - D. Trochanter, Femur, Tibia, Tarsus, Claw

- v. \_\_\_\_\_ is not found on chewing mouthparts.  
A. Mazilla  
B. Maxillae  
C. Mandible  
D. Labrum
- vi. Mosquitos' have \_\_\_\_\_ mouthparts.  
A. Piercing and sucking  
B. Sponging  
C. Siphoning  
D. Chewing
- vii. Houseflies' have \_\_\_\_\_ mouthparts.  
A. Piercing and sucking  
B. Sponging  
C. Siphoning  
D. Chewing
- viii. \_\_\_\_\_ are insect legs adapted for running.  
A. Natatorial  
B. Raptorial  
C. Cursorial  
D. Fossorial  
E. Saltatorial
- ix. \_\_\_\_\_ are insect legs adapted for digging.  
A. Natatorial  
B. Raptorial  
C. Cursorial  
D. Fossorial  
E. Saltatorial
- x. Butterflies have \_\_\_\_\_ wings.  
A. Scaly  
B. Membranous  
C. Elytra  
D. Halteres  
E. Tegmina
- xi. Locusts have \_\_\_\_\_ wings.  
A. Scaly  
B. Membranous  
C. Elytra  
D. Halteres  
E. Tegmina

- xii. Insects with 'no life cycle' are said to be:  
A. Holometabolous  
B. Hemimetabolous  
C. Ametabolous  
D. None of the above
- xiii. Which of the following is not an insect order?  
A. Hemiptera  
B. Homoptera  
C. Hemoptera  
D. Hymenoptera
- xiv. Katydid belongs to the \_\_\_\_\_ order.  
A. Orthoptera  
B. Coleoptera  
C. Lepidoptera  
D. Diptera
- xv. Beetles belong to the \_\_\_\_\_ order.  
A. Orthoptera  
B. Coleoptera  
C. Lepidoptera  
D. Diptera
- b. The following are multiple choice questions on parasitology. Each question carries **one mark**.
- i. Protozoa, helminths and arthropods are not classifications of parasites.  
A. True  
B. False  
C. Only helminths are not  
D. Only arthropods are not.
- i. \_\_\_\_\_ is a form of symbiosis where no interaction or dependency occur between two species.  
A. Commensalism  
B. Parasitism  
C. Mutualism  
D. Phoresis
- ii. What form of symbiosis exists between honeybees and varroa mites?  
A. Commensalism  
B. Parasitism  
C. Mutualism  
D. Phoresis

- iii. \_\_\_\_\_ host serves as a temporary refuge and vehicle for reaching an obligatory host.  
A. Paratenic  
B. Reservoir  
C. Natural  
D. Accidental
- iv. \_\_\_\_\_ parasitism is when a parasite attacks an unnatural host and survives.  
A. Erratic  
B. Accidental  
C. Facultative  
D. Obligate
- v. Parenchymatous degeneration, fatty degeneration and \_\_\_\_\_ are cell damages.  
A. Necrosis  
B. Collenchymatous degeneration  
C. Fatty degeneration  
D. Protein degeneration
- vi. Neoplasms may be benign and malignant.  
A. True  
B. False.  
C. Benign yes but not malignant  
D. Malignant yes but not benign
- vii. Sarcomastigophora, Insecta and Trematoda belong to the phylum Arthropoda.  
A. True  
B. False  
C. No, only Insecta and Trematoda  
D. No, only Insecta and Sarcomastigophora
- viii. Insecta, Arachnida and Pentastomida are classes of arthropods.  
A. True  
B. Only Insecta belong to the phylum Arthropoda  
C. No, Pentastomida and Arachnida are not arthropods  
D. False



- ix. \_\_\_\_\_ is a Nematyhelminth.  
A. Trematoda  
B. Apicomplexa  
C. Nematoda  
D. Arachnida
- x. Parasites do not \_\_\_\_\_.  
A. injure the host's tissues during penetration  
B. inflict tissue damage after they have penetrated the host  
C. induce histopathologic changes in the host  
D. injure the host's tissues when they exit
- xi. \_\_\_\_\_ occurs when cell degeneration persists.  
A. Nacrosis  
B. Necrosis  
C. Nicrosis  
D. Nocrosis  
E. Nucrosis
- xii. \_\_\_\_\_ is an accelerated rate of cell division resulting from an increased level of cell metabolism.  
A. Hypertrophy  
B. Metaplasia  
C. Neoplasia  
D. Hyperplasia
- xiii. \_\_\_\_\_ describes the changing of one type of tissue into another.  
A. Hypertrophy  
B. Metaplasia  
C. Neoplasia  
D. Hyperplasia
- xiv. \_\_\_\_\_ is the growth of cells in a tissue to form a new structure.  
A. Hypertrophy  
B. Metaplasia  
C. Neoplasia  
D. Hyperplasia
- xv. \_\_\_\_\_ causes elephantiasis.  
A. *W. Bancroft*  
B. *T. b. rhodesience*  
C. *E. histolytica*  
D. *T. gondii*

## SECTION B

2. Describe the general characteristics of the following insect orders:
- a) Coleoptera [5 Marks]
  - b) Orthoptera [5 Marks]
  - c) Diptera [5 Marks]
  - d) Lepidoptera [5 Marks]
3. Give the correct terms for:
- a) Simple eyes [1 Mark]
  - b) Pores used for gaseous exchange by insects [1 Mark]
  - c) Reproduction of male insects without fertilization of eggs [1 Mark]
  - d) The three segments of an insect's thorax [3 Marks]
  - e) Pairs of wings on the middle and last segments of an insect's thorax [2 Marks]
  - f) Wing that is clear, with veins showing. [1 Mark]
  - g) Wing that is half clear and half leathery. [1 Mark]
  - h) Paired appendages of the 8<sup>th</sup> or 9<sup>th</sup> abdominal segment of female insects for egg laying. [1 Mark]
  - i) Forcep-like appendages on the end of the abdomen of an insect. [1 Mark]
  - j) The "front lip" of a mandibulate insect. [1 Mark]
  - k) The smaller of the two species in phoresis. [1 Mark]
  - l) An organism that spends a portion or all of its life intimately associated with another organism. [1 Mark]
  - m) A parasitic organism that lives on the outer surface of its host. [1 Mark]
  - n) Neoplasms that remain localized and do not invade adjacent tissues. [1 Mark]
  - o) Neoplasms that invade adjacent tissues or move (metastasize) to other parts of the body through the blood or lymph. [1 Mark]
  - p) Enhanced growth as a result of excessive consumption of food to meet the demands of parasites. [1 Mark]
  - q) Destruction of gonadal tissues by a parasite. [1 Mark]
4. With the aid of diagrams, explain an insect's
- a) Respiratory system [8 Marks]
  - b) Digestive system [12 Marks]
5. Citing relevant examples, distinguish the following:
- a) Mutualism and commensalism [5 Marks]
  - b) Obligate and facultative parasitism [5 Marks]
  - c) Ectoparasite and endoparasite [5 Marks]
  - d) Albuminous and fatty degeneration [5 Marks]

END OF PAPER