

UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER 2015

TITLE OF PAPER : INVERTEBRATE ZOOLOGY

COURSE CODE : B204

TIME ALLOWED : THREE HOURS

INSTRUCTIONS :

1. THIS PAPER HAS TWO SECTIONS, A AND B
2. SECTION A IS COMPULSORY
3. ANSWER ANY THREE (3) QUESTIONS FROM SECTION B
4. WHEREVER POSSIBLE ILLUSTRATE YOUR ANSWERS WITH LARGE CLEARLY LABELLED DIAGRAMS

SPECIAL REQUIREMENTS: NONE

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATORS

SECTION A (Compulsory)

QUESTION 1

Construct a phylogenetic tree using the following Metazoan phyla: Brachiopoda, Cnidaria, Onychophora, Chordata, Platyhelminthes, Tardigrada, Echinodermata, Porifera, Annelida, Phoronida, Arthropoda, Bryozoa, Hemichordata Mollusca, Rotifera, Nematoda. The following groupings should be indicated:

Eumetazoa, Parazoa, Radiata, Bilateria, Protostomia, Ecdysozoa, Lophotrochozoa and Deuterostomia

and name the distinguishing character for each main "branch".

[Total marks = 30]

SECTION B

QUESTION 2

a. Invertebrates occupy the marine, freshwater systems and terrestrial habitats. Which habitat is most suitable for them and why? (10)

b. *Schistosoma mansoni* and *Babesia bovis* are economically important species in Swaziland.

Distinguish between the two species and give reasons for their economic importance. (15)

[Total = 25 marks]

QUESTION 3

a. What is a larva? Using the various phyla studied, discuss the purpose of having a larval stage. (10)

b. Using named examples and illustrations, distinguish the following modes of reproduction:

i. Fragmentation (3)

ii. Schizogony (4)

iii. Conjugation (8)

[Total = 25 marks]

QUESTION 4

Parasites need to overcome a number of challenges in their life-cycles. Using named parasites, discuss the following:

i. Attachment devices (8)

ii. Host manipulation (6)

iii. Concomitant immunity (8)

iv. Adapting to host's habits (3)

[Total = 25 marks]

QUESTION 5

a. What is torsion? Using a named taxon, discuss the morphological changes in body plan observed after this phenomenon? (12)

b. Explain how epitoky has contributed to the reproductive success of the Class Polychaeta. Elaborate on their reproductive strategies. (13)

[Total = 25 marks]

[Turn page over]

QUESTION 6

Write short notes on two of the following:

- i. Gastrulation
- ii. Reproduction in Rotifera
- iii. Invertebrate excretory organs
- iv. Anthozoan autapomorphies

[Total = 25 marks]