

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER 2012

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)

Construct a phylogenetic tree of the following Metazoan phyla: Cnidaria, Onychophora, Chordata, Platyhelminthes, Tardigrada, Echinodermata, Porifera, Annelida, Arthropoda, Hemichordata Mollusca, Rotifera, Nematoda. Indicate the Eumetazoa, Bilateria, Protostomia, Ecydsozoa, Parazoa, Radiata, Lophotrochozoa and the Deuterostomia.

[Total marks = 25]

SECTION B

Answer any **three (3)** questions

Question 2

- a. Demonstrate how the basic molluscan body plan has been modified in the Class Bivalvia. How have these modifications enabled adaption for their lifestyle? (20)
- b. Why is there so much invertebrate diversity in marine systems compared to terrestrial habitats? (5)

[Total marks = 25]

Question 3

Using illustrations and named examples, briefly describe the structure and function of the following:

- i. Cnidocyte (5)
- ii. Nephridia (10)
- iii. Cuticle (10)

[Total = 25 marks]

Question 4

Using named examples, define the following:

- i. invagination (4)
- ii. cephalisation (4)
- iii. synapomorphy (3)
- v. tagmatisation (4)
- vi. torsion (5)
- vii. epitoky (5)

[Total = 25 marks]

Question 5

- a. Enumerate the stages observed in metazoan ontogeny. (10)
- b. Use examples to define and demonstrate the advantage of the following:
 - i. Neotony (5)

- ii. Schizogony
- iii. Polymorphism

(5)

(5)

[Total = 25marks]

Question 6

Determine the ontogeny and reproductive pattern of an organism with a marine, benthic lifestyle.

[Total = 25 marks]