



FACULTY OF SCIENCE

DEPARTMENT OF ZOOLOGY

MODULE: ZOO1B10

CAMPUS: APK

EXAMINATION: NOVEMBER 2014

DATE: 8 NOVEMBER, 2014

SESSION 12:30- 15.30

ASSESSOR

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INTERNAL MODERATORS

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DURATION THREE (3) HOURS

MARKS 125

NUMBER OF PAGES: THREE (3) PAGES

INSTRUCTIONS: Answer all the questions

QUESTION 1

[10]

Define the following terms

- 1.1 Protonephridia
- 1.2 Ctenidia
- 1.3 Sclerite
- 1.4 Bothryoidal tissue
- 1.5 Monoecious
- 1.6 Cladists
- 1.7 Eutely
- 1.8 Phylogenetic Systematics
- 1.9 Polian vesicle
- 1.10 Neoteny

QUESTION 2

[15]

- 2.1 Discuss (in detail) what the following features regarding live systems imply/mean. (2 x 5 =10)
 - 2.1.1 Chemical uniqueness
 - 2.1.2 Complexity and hierarchical organisation
 - 2.1.3 Metabolism
 - 2.1.4 Possession of a genetic programme
 - 2.1.5 Development
- 2.2 Draw a table and indicate five (5) differences identifiable between organisms that belong to the Protostomia and Deuterostomia. (10 x ½ =5)

QUESTION 3

[25]

- 3.1 Use cross - sectional illustrations to indicate the structural differences between the flatworm and roundworm. Indicate all structures with correct colour codes. (24 x ½ =12)
- 3.2 Write down the complete classification of the flatworm and the roundworm respectively beginning with the Phylum taxon. (6)
- 3.3 Draw a two-column table and list **four (4)** unique features of the flatworm in the first column and the round worm in the second column. (8 x ½ = 4)
- 3.4 Briefly describe the lifecycle of the roundworm. (3)

QUESTION 4**[20]**

Onychophorans share many characteristics (structures) with both the Annelids and Arthropods and have therefore been regarded as the missing link between the two phyla.

- 4.1 Discuss this statement by means of a labelled illustration of a cross-section through an Onychophoran.
- 4.2 List five (5) structures (in a two-column table) that the Onychophoran shares with annelids.

QUESTION 5**[15]**

In contrast to the Annelida which have a closed vascular system, the arthropods have an open blood vascular system. Using labelled illustrations, discuss the development of a closed and open blood vascular system and indicate which animals have an open and/or closed blood vascular system. Include correct colour codes for all structures.

QUESTION 6**[15]**

The segmental appendages of a crustacean can all be derived from a basic biramous appendage called a stenopodium. Discuss this statement and include a labelled illustration of this typical biramous appendage through the Maxiliped III region.

QUESTION 7**[10]**

- 7.1 “The presence of certain structures/characteristics among certain Arthropods undoubtedly contributes to their success as terrestrial animals.” List and discuss five (5) features in terrestrial arthropods that have enhanced their success in terrestrial environment. (5)
- 7.2 Briefly discuss the components that make up the exoskeleton. List the hormones responsible for this process and how the exoskeleton is shed off in arthropods. (5)

QUESTION 8**[15]**

- 8.1 The presence of a water vascular system is unique to Echinoderms. Describe with labelled diagrams the water vascular system of the asteroids. (12)
- 8.2 List at least three (3) unique characteristics of the Phylum Chordata. (3)