



**RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES**

**B.Sc. (General) Degree in Applied Sciences
First Year – Semester I Examination – June/July 2018**

BIO 1202 – ANIMAL DIVERSITY I

Index Number:

Time: Two (02) hours

This question paper consists of sections A, B and C. Answer ALL questions in section A and B and ONE (01) question from section C.

For official use Only					
Marks					
Question 1	Question 2	Question 3	Question 4	Question 5	Total

Section A: Multiple choice questions (40 minutes)

1. Underline the **most suitable** option using a **pen**.

a) A statocyst is a structure that is involved in

- I. movement
- II. maintaining balance
- III. prey capture
- IV. digestion

b) Which of the following are coelomate animals

- I. porifera, platyhelminthes, nematoda
- II. annelida, molusca, cnidaria
- III. mollusca, annelida, nematoda
- IV. annelida, mollusca, arthropoda

- c) In a leuconoid sponge, the choanocytes are found in the
- I. flagellated chambers.
 - II. radial canals.
 - III. incurrent canals.
 - IV. excurrent canals.
- d) Metameric segmentation is a
- I. condition of being made up of serially repeated body parts.
 - II. condition of being made up of distinct body segments.
 - III. condition of being made up of fused body segments to form distinct regions.
 - IV. condition of being made up of highly similar segments.
- e) Classification is called a natural system because organisms are grouped based on their
- I. overall similarities
 - II. overall dissimilarities
 - III. evolutionary relationships
 - IV. natural similarities
- f) A monophyletic clade contains a group of organisms that include
- I. ancestors and some of its descendants.
 - II. ancestors and all of its descendants.
 - III. common ancestors and some of its descendants.
 - IV. common ancestor and all of its descendants.
- g) Triploblastic animals have
- I. a body cavity lined by the endoderm
 - II. three cell layers in the body
 - III. three germ layers during the formation of the blastula
 - IV. three distinct segments in the body
- h) Which of these are true about holometabolous development?
- A. It involves the stages of eggs, larvae, pupae and adults.
 - B. It reduces the predation of larvae by adults.
 - C. It reduces intraspecific competition between larvae and adults.
 - D. It involves the stages of eggs, nymphs and adults.
- I. A only
 - II. B only
 - III. A and C
 - IV. B and D
- j) The body of a typical mollusc consists of
- I. head, foot, tentacles and visceral mass
 - II. head, foot, mantle cavity and visceral mass
 - III. head, foot, mantle and visceral mass
 - IV. head, foot, shell and mantle cavity

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- k) The most likely reason for cephalopods to have a closed circulatory system would be to support their
- I. complex body organization
 - II. complex reproductive behaviour
 - III. rapid body colour changes
 - IV. active life style
- l) Phylum mollusca can be distinguished from other invertebrates by the presence of
- I. bilateral symmetry and an exoskeleton
 - II. a mantle and gills
 - III. a shell and non-segmented body
 - IV. a mantle and non-segmented body
- m) All of the following groups are members of the subphylum Crustacea except
- I. malcostraca
 - II. decapoda
 - III. branchiopoda
 - IV. pycnogonida
- n) The non-living exoskeleton inhibits growth in arthropods. To cope with this situation, the process arthropods use to shed the old exoskeleton is
- I. ecdysis
 - II. metamorphosis
 - III. tagmatization
 - IV. shedding
- o) The characteristics of four pairs of walking legs, a pair of pedipalps, and no mandibles or antennae are present in which of the following?
- I. Chelicerata
 - II. Myriopoda
 - III. Hexapoda
 - IV. Pycnogonida
- p) The crustaceans are the only arthropods with
- I. head, thorax, and abdomen
 - II. two pairs of antennae
 - III. mandibles
 - IV. biramous appendages
- q) The cartilaginous portion of the radula that supports the teeth in molluscs is called the
- I. spicule
 - II. visceral mass
 - III. teeth
 - IV. odontophore

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- r) The structures that keep the body surface clean of debris in echinodermates are called
- I. madreporites.
 - II. dermal branchiae.
 - III. lateral podia.
 - IV. pedicellariae.
- s) Two functions of the tree-like structure in the coelom of holothuroideans that is connected to the cloaca are
- I. respiration, excretion.
 - II. excretion, digestion.
 - III. digestion, circulation.
 - IV. circulation, respiration.
- t) Which part of the body is rotated during the process of torsion in gastropods?
- I. surface
 - II. mantle
 - III. viscera
 - IV. tentacles
- u) Mouthparts of an insect typically contain
- I. labium, tergum, mandibles, and maxillae.
 - II. tergum, labrum, mandibles, and maxillae.
 - III. pleura, labium, mandibles, and maxillae.
 - IV. labrum, mandibles, maxillae, and labium.

(80 marks)

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Section B: Structured Essay Questions (50 minutes)

Answer all sections only in the space provided.

2.

- a) State the minimal requirement to form a complete digestive tract.

.....

(4 marks)

- b) Give two phyla with incomplete digestive tracts and two phyla with complete digestive tracts?

Incomplete digestive tract:

.....

Complete digestive tract:

.....

(8 marks)

- c) Describe briefly the disadvantages of having an incomplete digestive tract.

.....

(8 marks)

- d) Draw a labeled diagram of the digestive tract of an earthworm.

(10 marks)

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e) State the function of each region of the digestive tract in the earthworm?

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(20 marks)

f) Explain why this is a more efficient system in comparison the incomplete digestive tract.

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.....

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(12 marks)

(Total: 60 marks)

3.

a) Describe the difference between a diploblast and a triploblast.

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.....

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(8 marks)

b) State the names of the germ layers in the blastula of diploblasts and a triploblasts.

Diploblast:.....

.....

Triploblast:.....

.....

(10 marks)

c) Give two phyla that show diploblasty and two phyla that show triploblasty.

Diploblasty:.....

.....

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Triploblasty:.....

(8 marks)

- d) Write the respective germ layer that gives rise to the following regions of the body of a triploblast.

Body wall:.....

Coelom lining:.....

Gut wall:.....

(6 marks)

- e) Deuterostomes and Protostomes are the two main groups of triploblasts. Provide two representative phyla for each group.

Deuterostomes:.....

.....

Protostomes:.....

.....

(8 marks)

- f) Draw a labelled diagram of a gastrula.

(10 marks)

- g) Briefly describe the fate of the blastopore in deuterotomes and protostomes.

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(10 marks)

(Total: 60 marks)

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Section C: Essay questions (30 minutes)

- 4.
- a) Describe the characteristic features of nematodes.
 - b) Write a comparative account on the life cycle of two parasitic nematodes that infect humans.
- (100 marks)
5. Arthropods are one of the most successful groups of invertebrates. Discuss the adaptations and features that made this group highly successful.
- (100 marks)

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