



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

**B.Sc. (General) Degree in Applied Sciences
First Year – Semester I Examination – September/October 2019**

ZOO 1201 – INVERTEBRATE DIVERSITY

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 TWO (02) questions from section C.

For official use Only						
Marks						
Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Total

Section A: Multiple choice questions (20 minutes)

1. Underline the **most suitable** option using a **pen**.
 - a) Which of the following pair of organisms show a cellular-tissue grade of body organization
 - I. sponges, protistans
 - II. cnidarians, sponges
 - III. cnidarians, platyhelminths
 - IV. sponges, platyhelminths
 - b) Polarity is the
 - I. division of the body into a series of repetitive segments
 - II. localization of sensory organs in the anterior end of the body
 - III. differentiation along an anterior posterior axis
 - IV. serial repetition of similar segments along an anterior-posterior axis

- c) A monophyletic group/clade is a group of organisms that consists of a
- I. common ancestor and its hypothetical descendants
 - II. common ancestor and all its descendants
 - III. common ancestor and some of its descendants
 - IV. common ancestor and its hypothetical ancestors
- d) A schizocoelous coelom is formed by
- I. splitting of the mesodermal embryonic tissue.
 - II. splitting of the endodermal embryonic tissue.
 - III. splitting of the ectodermal embryonic tissue.
 - IV. the pouches of split endodermal embryonic tissue.
- e) The cytostome of protistans is a
- I. specialized structure used for osmoregulation.
 - II. specialized structure used for prey capture.
 - III. specialized structure used for feeding.
 - IV. specialized structure used for reproduction.
- f) *Plasmodium*, the protistan parasite that causes the disease malaria in humans belongs to the phylum
- I. Sarcomastogophora
 - II. Ciliophora
 - III. Apicomplexa
 - IV. Dinoflagellata
- 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 anthozoans?
- A. Only polyp stage is present.
 - B. Both polyp and medusa stages are present.
 - C. Gastrovascular cavity is divided by eight septa.
 - D. Only solitary forms present.
- I. A only
 - II. B only
 - III. A and C
 - IV. B and D

- i) Which of the following groups of flat worms go through two hosts in their life cycle
- I. Turbellaria, Cestoda
 - II. Cestoda, Monogenea
 - III. Trematoda, Monogenea
 - IV. Cestoda, Trematoda,
- j) For which of the following pairs the trochophore larva indicates a common ancestry?
- I. Mollusca – Cnidaria
 - II. Mollusca – Cephalopoda
 - III. Echinodermata – Annelida
 - IV. Annelida – Mollusca
- k) The hirudineans
- I. usually lack setae (chaetae).
 - II. bears parapodia on the body.
 - III. bears a clitellum around the body.
 - IV. are endoparasites.
- l) Members of the class arachnida are differentiated from other arthropods by having a
- I. head, thorax and abdomen.
 - II. cephalothorax and abdomen.
 - III. head and thorax.
 - IV. Head and trunk.
- m) The crustaceans are the only arthropods with
- I. separate sexes.
 - II. eight pairs of jointed legs.
 - III. two pairs of antennae.
 - IV. malpighian tubule.
- n) Which of the following are not respiratory structures seen in insects, in either their juvenile or adults forms?
- I. Book lungs
 - II. Tracheal gills
 - III. Trachea
 - IV. Ctenidia

- o) Aristotle's lantern is found in class _____ and it is used for _____.
- I. Echinoidea, chewing
 - II. Ophiuroidea, reproduction
 - III. Crinoidea, chewing
 - IV. Asteroidea, reproduction
- p) Which of the following classes bear five arms with pinnules, an oral surface containing ciliated ambulacral grooves and doliolaria larvae but lacking spines, madreporite and pedicellariae?
- I. Asteroidea
 - II. Ophiuroidea
 - III. Crinoidea
 - IV. Echinoidea
- q) Closed circulatory system is present in;
- I. Cephalopoda, Annelida
 - II. Mollusca, Anellida
 - III. Platyhelminthes, Nematoda
 - IV. Cnidaria, Cephalopoda
- r) The shell of mollusks is formed by the
- I. gills
 - II. ctenidia
 - III. mantel
 - IV. radula
- s) The presence of four pairs of walking legs and a pair of pedipalps, and absence of mandibles or antennae are characteristic of
- I. Chelicerata
 - II. Cephalocarida
 - III. Trilobita
 - IV. Entognatha
- t) Radial symmetry and diploblasty are shared among the phyla
- I. Prototista, Cnidaria
 - II. Porifera, Cnidaria
 - III. Cnidaria, Ctenophora
 - IV. Ctenophora, Porifera

(80 marks)

Section B: Structured Essay Questions (40 minutes)Answer all sections only in the space provided.

2.

- a) Explain what is meant by body symmetry.

.....

.....

(4 marks)

- b) State the determinants of body symmetry?

.....

.....

(6 marks)

- c) Describe the differences between radial and biradial symmetry.

.....

.....

.....

.....

.....

.....

.....

(8 marks)

- d) Giving an example, state the typical 'mode of life' of the organisms that possess radial symmetry.

.....

.....

.....

(4 marks)

- e) Explain how the mode of life of the organisms you mentioned above is related to their' body symmetry?

.....

.....

.....

.....

.....

(10 marks)

- f) Providing a suitable example, describe what is bilateral symmetry.

.....

.....

.....

.....

(4 marks)

- g) Most bilaterally symmetric animals also show cephalization. Clarify what is cephalization.

.....

.....

.....

.....

(4 marks)

- h) Explain why bilateral symmetry, polarization and cephalization are highly associated in most organisms.

[illegible]

(20 marks)

(Total: 60 marks)

3.

a) What is "Cephalization"?

.....

.....

.....

(4 Marks)

b) State the connection between cephalization and brain development.

.....

.....

.....

(4 Marks)

c) Name the phyla that has a nerve net.

.....

.....

(6 marks)

d) Explain the term "Ganglion". What is the first phylum to have a Ganglion?

.....

.....

(6 marks)

e) Describe what a nerve net is.

.....

.....

.....

(6 marks)

f) Briefly explain the sensory and nerve coordination of Platyhelminthes.

.....

.....

.....

.....

.....

.....

.....

(10 marks)

g) Complete the following table.

Phyla/Organism	Nerves system
Nematoda	
Annelida	
Insects	
Sea Star	

(18 marks)

h) Name the specialized sensory organs present in Phylum Echinodermata.

.....

.....

.....

(6 marks)

(Total: 60 marks)

Section C: Essay questions (60 minutes)

4. Compare and contrast the major characteristics of cnidarians and ctenophores.

(100 marks)

5. During a coastal field excursion you have found a small red colored animal with the following characters;

- Bilaterally symmetric body with cephalothorax and abdomen
- Body covered with exoskeleton
- Three pairs of jointed biramous appendages
- Two compound eyes, two pairs of antennae, a pair of mandibles and two pairs of maxillae on head

- a) Name the most plausible class and the phylum that this species could belong to.
- b) Describe the basic characteristics of that phylum.

(100 marks)

6. Write short notes on any **four (4)** of the following

- a) Classification
- b) Apicomplexa
- c) Economic importance of arthropods
- d) Polychaeta
- e) Asteroidea

(100 marks)

---END---