

**BINDURA UNIVERSITY OF SCIENCE EDUCATION**  
**DEPARTMENT OF BIOLOGICAL SCIENCES**  
**BScBZH/ HBScED/BScED**  
**DIVERSITY OF LIFE II (BZH 102)**

**EXAMINATION**  
**2 HOURS (100 MARKS)**

JUN 2024

**INSTRUCTIONS**

Answer **FOUR** questions. You **MUST** answer **QUESTION 1** (Section A) and any **THREE** questions from Section B. Each question carries **25 MARKS**. Where a question contains subdivisions, the mark value of each subdivision is given in brackets. Illustrate your answers where appropriate with large, clearly labelled diagrams. You should not spend more than thirty minutes on each question.

**SECTION A (COMPULSORY)**

1. (a) The dichotomous key below was constructed based on some of the characteristics observed on invertebrate specimens in the laboratory.

**Dichotomous key:**

- 1. Vertebrate.....Phylum Chordata
- No vertebrate.....go to 2
- 2. Radial symmetry or asymmetry.....go to 3
- Bilateral symmetry.....go to 5
- 3. Highly porous surface, no true tissues.....**Phylum A**
- Surface is not highly porous, true tissues present.....go to 4
- 4. Can be equally divided into 5 parts; tube feet; spiny skin.....**Phylum B**
- Cannot be divided equally into 5 parts, possesses tentacles.....**Phylum C**
- 5. Possesses a segmented body.....go to 6
- Does not possess a segmented body.....go to 7
- 6. Exoskeleton with jointed appendages.....**Phylum D**
- No exoskeleton and appendages, segmented worm-like body.....**Phylum E**
- 7. Possesses a worm like body.....**Phylum F**
- Does not possess a worm like body.....go to 8
- 8. Possesses a foot, radula, arms and/or shell.....**Phylum G**
- Lacking a foot, radula and arms and has a flattened body.....**Phylum H**

- (a) Identify the Phyla labelled A to H. (8 marks)
- (b) Describe methods of collecting invertebrates from: (8 marks)
  - (i) an aquatic habitat and (9 marks)
  - (ii) a terrestrial habitat.

## **SECTION B**

2. (a) Compare the development of the embryos in Protostomia and Deuterostomia. (12 marks)  
(b) Compare and contrast organisms in the Phylum Annelida and Nematoda. (13 marks)
3. (a) Compare and contrast Cnidaria and Porifera. (10 marks)  
(b) Describe the asconoid, syconoid and leuconoid body types in sponges. (15 marks)
- 4 (a) Outline diagnostic features of organisms in the phylum Chordata. (10 marks)  
(b) Using the Phylum Mollusca as an example, explain adaptive radiation. (15 marks)
5. Describe the adaptations made by flatworms belonging to the Phylum Platyhelminthes to their parasitic lifestyle.
6. Write short notes on any **FIVE** of the following:
- (a) Triploblastic (5 marks)
  - (b) Hermaphrodite (5 marks)
  - (c) Chitin (5 marks)
  - (d) Metamerism (5 marks)
  - (e) Tube feet (5 marks)
  - (f) River blindness (5 marks)

**END OF EXAMINATION QUESTION PAPER**