



First Semester Examination
2023/2024 Academic Session

February 2024

BZT304 - Invertebrate Zoology
(Zoologi Invertebrata)

Duration: 2 hours
(Masa: 2 jam)

Please check that this examination paper consists of THREE (3) pages of printed material before you begin the examination.

[Sila pastikan bahawa kertas peperiksaan ini mengandungi TIGA (3) muka surat yang bercetak sebelum anda memulakan peperiksaan ini.]

Instructions: Answer **FOUR (4)** out of **FIVE (5)** questions, in English or Bahasa Malaysia. Each question carries 25 marks.

[Arahan: Jawab **EMPAT (4)** daripada **LIMA (5)** soalan yang diberikan dalam Bahasa Inggeris atau Bahasa Malaysia. Tiap-tiap soalan bernilai 25 markah.]

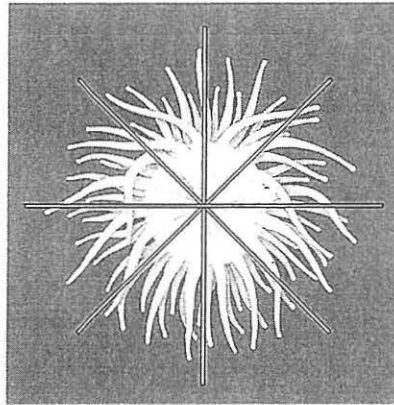
In the event of any discrepancies, the English version shall be used.

[Sekiranya terdapat sebarang percanggahan pada soalan peperiksaan, versi Bahasa Inggeris hendaklah digunapakai.]

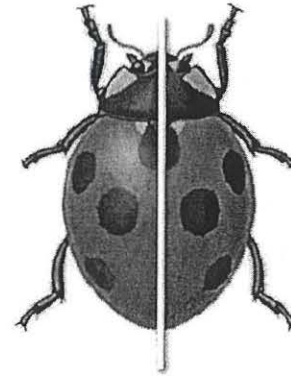
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SULIT

1. [a] Discuss the type of symmetries in Figure 1 (i) and (ii).
[Bincangkan jenis simetri dalam Rajah 1(i) dan (ii).]



(i)



(ii)

Figure 1
[Rajah 1]

(10 marks / 10 markah)

- [b] Provide osmoregulation and integument adaptations of invertebrate animals.
[Berikan adaptasi osmoregulasi dan integumen haiwan invertebrata.]

(15 marks / 15 markah)

2. [a] Explain the unique viviparous phenomenon of *Gyrodactylus bullatardis*.
[Terangkan fenomena viviparus unik pada *Gyrodactylus bullatardis*.]

(10 marks / 10 markah)

- [b] Identify **THREE (3)** types of nematocysts in *Aurelia* sp. and its characteristics.
[Kenal pasti **TIGA (3)** jenis nematosista pada *Aurelia* sp. dan cirinya.]

(15 marks / 15 markah)

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3. [a] Explain the structure and function of a molluscan radula.
[Terangkan struktur dan fungsi radula moluska.]
- (10 marks / 10 markah)
- [b] Examine the importance of colouration and light production on Cephalopoda survival.
[Kaji kepentingan pewarnaan dan penghasilan cahaya terhadap kemandirian Cephalopoda.]
- (15 marks / 15 markah)
4. [a] Discuss the general characteristics of a nematode, *Caenorhabditis elegans*.
[Bincangkan ciri umum nematod, Caenorhabditis elegans.]
- (10 marks / 10 markah)
- [b] Examine the structural and physiological factors contributing to the significant diversity and abundance of arthropods.
[Kaji faktor struktur dan fisiologi yang menyumbang kepada kepelbagaian dan kelimpahan artropod yang ketara.]
- (15 marks / 15 markah)
5. [a] Explain the system of protonephridia in the phylum of Platyhelminthes.
[Terangkan sistem protonephridia dalam filum Platyhelminthes].
- (10 marks/ 10 markah)
- [b] Identify the feeding mechanisms used by different classes of Echinodermata.
[Kenal pasti mekanisme pemakanan yang digunakan oleh kelas Ekinodermata yang berbeza.]
- (15 marks / 15 markah)