THE UNIVERSITY OF NEW SOUTH WALES
SCHOOL OF BIOLOGICAL, EARTH & ENVIRONMENTAL SCIENCES

T3, EXAMINATIONS
BIOS2031: Biology of Invertebrates

1. TIME ALLOWED – 2 hours
2. READING TIME – 10 minutes
3. THIS EXAMINATION PAPER HAS 3 PAGES
4. TOTAL NUMBER OF QUESTIONS – 6
5. TOTAL MARKS AVAILABLE – 120
6. MARKS AVAILABLE FOR EACH QUESTION ARE SHOWN IN THE EXAMINATION PAPER
7. ALL ANSWERS MUST BE WRITTEN IN INK. EXCEPT WHERE THEY ARE EXPRESSLY REQUIRED, PENCILS MAY BE USED ONLY FOR DRAWING, SKETCHING OR GRAPHICAL WORK
8. THIS PAPER MAY BE RETAINED BY CANDIDATE
9. CANDIDATES MAY BRING TO THE EXAMINATION – Pens, pencils
10. THE FOLLOWING MATERIALS WILL BE PROVIDED – Exam booklets

Answer all parts of Question 1. (30 marks)

Question 1. Many UNSW staff and research students are using invertebrate animals to examine a wide range of **conservation related** research topics.

For **ONE** of these research topics, answer the following questions:

a) Provide the common name and full classification of the animal being used. (5 marks)

b) What is the aim of the research topic? (5 marks)

c) What are the main findings of the research? (10 marks)

d) Why are the invertebrates used appropriate for addressing those research aims? (10 marks)

Answer THREE (3) questions from Questions 2 to 7.

Answer all parts of each question (90 marks, 30 marks each question)

Question 2. Describe and discuss the basic body plan of a sponge (15 marks) using diagrams to illustrate (5 marks), and list the defining characteristics of sponges (10 marks).

Question 3. Diploplastic and triploplastic are terms used in the classification of invertebrates that relate to the body plan.

a) What do these terms mean? (10 marks)

b) Contrast the body plan and tissue structure of diploplastic and triploblastic invertebrates, using diagrams and provide examples that you have learned about this term (10 marks)

c) Compare acoelomate, pseudocoelomate, and coelomate body plans, using diagrams and text. Discuss how these body plans relate to diploblastic and triploblastic tissue layers. (10 marks).

Question 4.

1) Name three major adaptations of insects that has contributed to their success (15 marks).

2) What are the morphological differences between hemimetabolous and holometabolous insects, and how do these differences relate to lifestyle (15 marks)

Question 5. An endangered species of marine lobster is threatened by the development of a harbour.

a) How would we determine if the species really is endangered? What limits our knowledge on invertebrate abundance? (10 marks)
b) Outline the reasoning for conservation of threatened species of crustacea. (20 marks)

Question 6. Mutualisms and symbioses involving invertebrate animals are commonly found in a wide variety of habitats. Choose one example of a mutualism that involves an invertebrate, and answer the following questions:

a) Briefly describe the two animal species involved and where the interaction can be found. (5 marks)
b) Discuss the benefits to each species involved in the mutualistic relationship. (10 marks)
c) What structural or behavioural adaptations are associated with living in this mutualistic relationship. (15 marks)

Question 7.

1) Name three major adaptations of insects that has contributed to their success (15marks)

2) What are the morphological differences between hemimetabolous and holometabolous insects, and how do these differences relate to lifestyle ? (15 marks)

END OF PAPER