



**PAMIBIA UNIVERSITY**  
**OF SCIENCE AND TECHNOLOGY**

**FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES**

**DEPARTMENT OF NATURAL AND APPLIED SCIENCES**

<b>QUALIFICATION: BACHELOR OF SCIENCE</b>	
<b>QUALIFICATION CODE: 07BOSC</b>	<b>LEVEL: 7</b>
<b>COURSE CODE: MAB702S</b>	<b>COURSE NAME: MARINE BIOLOGY 3B</b>
<b>SESSION: JANUARY 2023</b>	<b>PAPER: THEORY</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 100</b>

<b>SUPPLEMENTARY / SECOND OPPORTUNITY EXAMINATION PAPER</b>	
<b>EXAMINER (S):</b>	<b>Dr. Edosa Omoregie</b>
<b>MODERATOR:</b>	<b>Dr. Johannes Iitembu</b>

<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Answer all questions in Sections A, B and C</li><li>2. Write clearly and neatly.</li><li>3. Number your answers clearly.</li><li>4. Draw diagrams wherever necessary</li></ol>

**Material/s allowed**  
Scientific Calculator

**THIS QUESTION PAPER CONSISTS OF 5 PAGES**

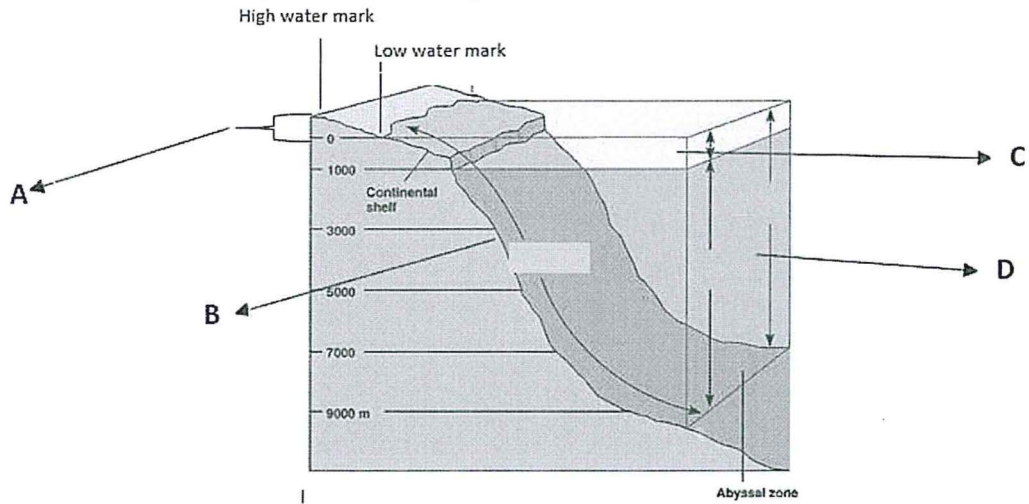
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ANSWER ALL QUESTIONS

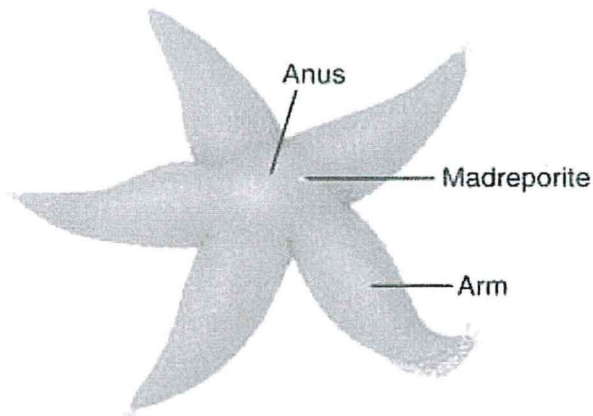
Section A:

[20]

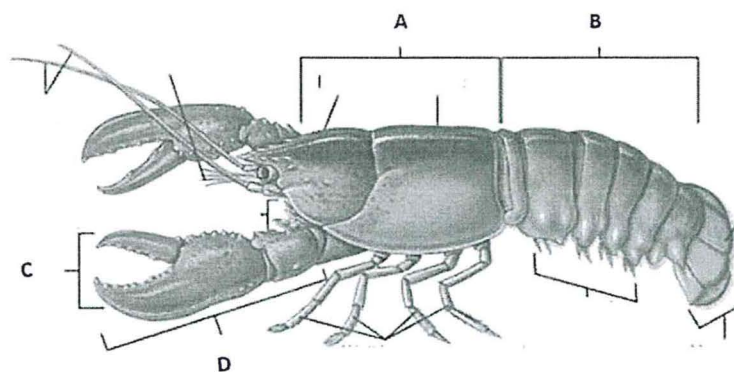
1. a). In the diagram below, identify and explain the areas marked as A, B, C and D. (4)



b). The diagram below is an illustration of a sea-star. State the Class and Phylum the organism below to? Explain the major reason for placing the organism under the Phylum you have stated? (4)



c). The diagram below is an illustration of a lobster. Identify the structures labelled as A, B, C and D. (2)



2. The star fish belong to which group of the following animals? (1)
- a. Molluscs
  - b. Foraminifera
  - c. Brachiopods
  - d. Ctenophores
  - e. Echinoderms
3. To which of the following kingdoms do the Barnacles belong to? (1)
- a. Fungi
  - b. Metazoa
  - c. Monera
  - d. Protista
  - e. Metaphyta
4. Oysters belong to which kingdom? (1)
- a. Foraminifera
  - b. Coccoliths
  - c. Metazoa
  - d. Brachiopods
  - e. Metaphyta
5. Sea urchins are classified under? (1)
- a. Foraminifera
  - b. Mollusks
  - c. Brachiopods
  - d. Echinoderms
  - e. Ctenophores
6. Salt tolerant plants such as *Salicornia* spp. are ecologically referred to as? (1)
- a. Mangroves
  - b. Angiosperms
  - c. Gametophytes
  - d. Halophytes
  - e. Sporophytes
7. Mussels and other filter feeders use which of the following options as food source? (1)
- a. Particulate organic matters suspended in water
  - b. Decomposed organic matters
  - c. Dissolved organic nutrients
  - d. Dead benthic organisms
  - e. Nekton
8. Marine organisms that live within the sediment of the sea bottom are referred to as? (1)
- a. Aphotic
  - b. Epifauna
  - c. Infauna

- d. Nekton
- e. Pelagic

9. Which of the following options is not a source of food deep-sea organisms? (1)
- a. Dead phytoplankton
  - b. Dead zooplankton
  - c. Faecal droppings from pelagic fish
  - d. Dead intertidal zone benthos
  - e. Macrophyte detritus
10. Which of the following vertical profile of the marine benthic environment will the sponges be the most dominate species in the ecological communities? (1)
- a. 0 to 100 m
  - b. 100 to 500 m
  - c. 500 to 1000 m
  - d. 1000 to 2000 m
  - e. 2000 to 7000 m
11. The full scientific name of the largest bacteria discovered in the Namibia marine environment is \_\_\_\_\_ (1)

**Section B: [20]**

12. a). With the aid of graphical illustration, briefly explain how a conformer and a regulator will respond to changes in their respective environment. (6)
- b). Name any group of marine organisms with each of the following pigments for oxygen transportation in their blood: (3)
- i. Haemocyanin
  - ii. Haemerythrin
  - iii. Chlorocruorin
- c). With suitable examples, explain how marine benthic organisms are adapted to withstanding effects of water currents. (4)
- d). With the aid of suitable diagram, discuss hydro-mechanical burrow by benthos on the seabed. (7)

**Section C: [60]**

13. a). Using suitable examples, explain the various evolutionary strategies used by marine prey organisms in avoiding predators in the environment. (7)
- b). With suitable ecological examples, explain the major causes of patchiness in the distribution of marine plankton. (13)

14. a). With suitable labelled diagram and reference to type of marine organisms, discuss the main characteristics of the high-intertidal zone. How does this zone differ from the low-intertidal zone? (16)
- b). List any four ecological roles of benthos in the marine ecosystem. (4)
15. a). Briefly describe the formation of coral reefs. (8)
- b). Discuss the ecological characteristics of the deep-sea environment. (8)
- c). Explain the impacts of trawling on the seabed and benthic communities. (4)