



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

SCHOOL OF NATURAL AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGY, CHEMISTRY AND PHYSICS

QUALIFICATION: BACHELOR OF SCIENCE	
QUALIFICATION CODE: 07BOSC	LEVEL: 7
COURSE CODE: MAB701S	COURSE NAME: MARINE BIOLOGY 3A
SESSION: JUNE 2023	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION PAPER	
EXAMINER (S):	Dr. Edosa Omoregie
MODERATOR:	Dr. Johannes Iitembu

INSTRUCTIONS	
<ol style="list-style-type: none">1. Answer all questions in Sections A, B and C2. Write clearly and neatly.3. Number your answers correctly.	

PERMISSIBLE MATERIAL

Calculator

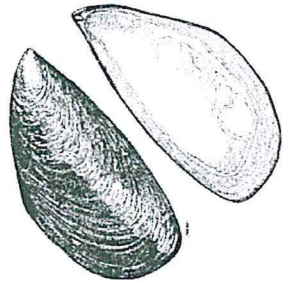
THIS QUESTION PAPER CONSISTS OF 4 PAGES
(Including this front page)

SECTION A

Answer all questions

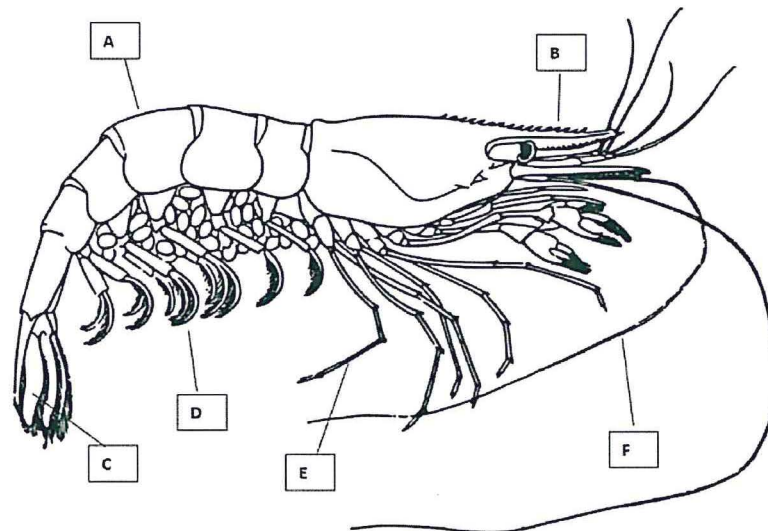
Total marks [15]

1. The diagram below illustrates a common intertidal organism collected from the Namibian coast



- i. State the Class and Phylum the organism belongs to? (2)
- ii. Explain the main reason for placing the organism under its Class? (3)

2. Name the parts labelled in the diagram below. Briefly explain the functions of the part labelled as D, E and F. (6)



3. The sea anemones belong to which of the following classes of marine animals? (1)
- a. Hydrozoa
 - b. Scyphozoa
 - c. Anthozoa
 - d. Calcarea
 - e. Hexactinellida
4. Which of the following pigments is predominant in the seaweed Phylum, Phaeophyta? (1)
- a. Chlorophyll
 - b. Phycobilin
 - c. Fucoxanthin
 - d. Carotenes
 - e. Flavoxanthin

4. Which of the following phyla do the barnacles belong to? (1)
1. Annelida
 2. Echinodermata
 3. Mollusca
 4. Arthropoda
 5. Cnidaria
5. Which of these groups of marine molluscs belong to Class Bivalvia? (1)
- a. Octopuses, Squids, Nautilus
 - b. Clams, Mussels, Oysters
 - c. Snails, Abalone
 - d. Slugs, Periwinkles

SECTION B

Answer all questions

Total marks [40]

6. With an appropriate schematic diagram, describe the different zones along the substratum of the marine ecosystem. (5)
7. Briefly explain the factors that affect Secchi disc depth (z_{sd}) of water in the marine environment. (4)
8. Briefly explain the diurnal distribution of dissolved oxygen in the marine environment with a suitable graphic illustration. (6)
9. With graphical representations, briefly explain the vertical variation patterns of phosphates in an oligotrophic and eutrophic aquatic system. (7)
10. In a tabular form, outline the main differences between marine Coccolithophores and Silicoflagellates. (8)
11. With a suitable example, explain any two characteristics of the marine cephalopods. (4)
12. In a tabular form, outline the main structural differences between marine diatoms and marine dinoflagellates. (6)

SECTION C

Answer all questions

Total marks [45]

13. (a). Name any three products of anoxic decomposition in the marine ecosystem. (3)

- (b). With the aid of the glycolytic partway and the tricarboxylic acid cycle, discuss the process of oxic decomposition in the marine environment. (12)
14. (a). With reference to the life cycle and suitable examples, differentiate holoplankton from meroplankton. (4)
- (b) Briefly explain the general characteristics and structure of marine macroalgae. (8)
- (c). List the three predominating pigments in the green, brown and red algae. (3)
15. With suitable diagrams, discuss how the elasmobranch and the teleost regulate their body osmotic pressure in conforming to living in the marine environment. (15)