



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

DEPARTMENT OF MECHANICAL AND AUTOMOTIVE ENGINEERING

DIPLOMA IN MARINE ENGINEERING (DMAE 4)

EMR 2217 NAVAL ARCHITECTURE & SHIP CONSTRUCTION IV

END OF SEMESTER EXAMINATIONS

YEAR 2 SEMESTER 2

SERIES: DECEMBER, 2013

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. You should have the following for this examination:
 - Answer Booklet
2. This paper consists of **FIVE** Questions.
3. Answer **ANY THREE** Questions.
4. All Questions carry Equal marks.
5. **This paper consists of THREE printed pages.**

Question ONE

Describe with the aid of sketches the following:

- (a) Bulbous bow (10 marks)
(b) Structure arrangement to resist pounding (10 marks)

Question TWO

Severe corrosion has been observed in ship made of steel with aluminium structures. Discuss this type of corrosion with particular reference to methods adapted to minimize its occurrence.

(20 marks)

Question THREE

- (a) Construct a displacement curve from the following data:

Draft (m)	3	3.5	4	4.5	5.0	5.9
(tonnes)	2700	3260	3800	4450	5180	6060

(10 marks)

- (b) If the ship's light draft is 3m and the load draft is 5.5m, calculate and find the deadweight.

(10 marks)

Question FOUR

- (a) Define the following terms:

- (i) Heel
(ii) List
(iii) Angle of loll

(6 marks)

- (b) MV PELELEZI is a box shaped vessel with the following dimensions:

24m length
5m Breadth
5m Depth

The vessel floats at an even keel at 2m draft, with $KG = 1.5m$. Calculate the initial metacentric height.

(14 marks)

Question FIVE

With regard to the inclining experiment:

- (a) State its purpose **(5 marks)**
- (b) Describe the precautions to be taken before and during the experiment. **(10 marks)**
- (c) List the circumstances when the experiment is required to take place. **(5 marks)**