



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

**DIPLOMA IN NAUTICAL SCIENCE**

**EMR 2206 : SHIP CONSTRUCTION AND NAVAL ARCHITECTURE III**

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2016**

**TIME: 2 HOURS**

**DATE:** Pick Date Dec 2016

## Instructions to Candidates

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt any **THREE** questions.

**Do not write on the question paper.**

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## **Question ONE**

- a) Define the following terminologies: **(10 Marks)**
- i. Double Bottom Tank:
  - ii. Duct Keel:
  - iii. KEEL
  - iv. Metacentric height
  - v. metacentre
- b) Using an appropriate diagrams show the different parts of the double bottom. **(10 Marks)**

## **Question TWO**

Describe in details the importance of the double bottom tanks in:

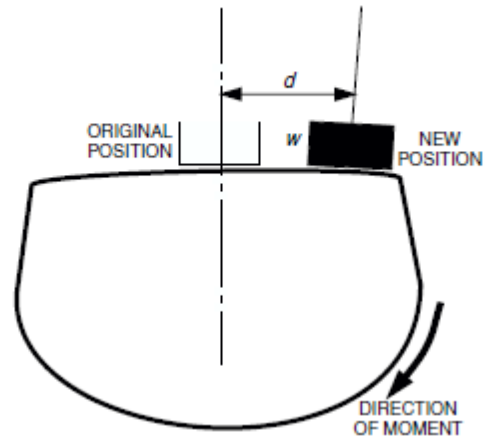
- a) Provision of storage space **(10 Marks)**
- b) Enhancing the integrity of the hull and ship structure **(10 Marks)**

### Question THREE

- a) Define the term inclining experiment (2 Marks)
- b) discuss in brief FIVE (5) important factors to guarantee the validity of the experiment (15 Marks)
- c) using an appropriate drawing illustrate the deflection and  $GG_1$  in an inclining experiment (3 Marks)

### Question FOUR

Using the diagram below discuss the concept of inclining moments (20 Marks)



### Question FIVE

When a vessel of 6300 tonnes displacement KM 7.0m is inclined by shifting 20 tonnes 16 m, it is noted that the mean deflection of a plumbline 15m long is 38.25 cm. What is her KG and inclined angle? (20 Marks)