



# TECHNICAL UNIVERSITY OF MOMBASA

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## SCHOOL OF BUSINESS

### DEPARTMENT OF MANAGEMENT SCIENCE

#### UNIVERSITY EXAMINATION FOR:

#### BACHELOR OF MARITIME MANAGEMENT(COMMERCIAL)

#### BMM 4106 : MARITIME TECHNOLOGY I – NAVAL ARCHITECTURE

#### END OF SEMESTER EXAMINATION

**SERIES:** APRIL 2016

**TIME:** 2 HOURS

**DATE:** Pick Date May 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. Name four classification societies that are members of International Association of Classification societies **(4 Marks)**
- b. Discuss the role of a classification society during
  - i). the building stages of a ship **(8 Marks)**
  - ii). the operation of a ship **(8 Marks)**

#### Question TWO

- a. Sketch a profile of a cargo ship and show the following arrangement
  - i). Collision bulkhead
  - ii). Afterpeak bulkhead
  - iii).Machinery space
  - iv). No.1 hold, No.2 hold No.3 hold and No.4 hold
  - v). Tween deck hold space
  - vi). Double bottoms **(10 Marks)**

- b. As a maritime expert, you have been invited in a brainstorming session by Kenya Ferry Services board directors to advise how their new ferries are going to be transported by sea from China. Describe the type of vessel you will recommend to ship on the ferries to Mombasa. **(10 Marks)**

### **Question THREE**

A ship 135m long, 18m beam and 7.6 m draught has a displacement of 14000 tonnes. The area of the load water plane area is 1925m<sup>2</sup> and the area of the immersed midship section 130m<sup>2</sup>.

Calculate: Water plane area, Immersed midship section area, and Prismatic coefficients, **(20 Marks)**

### **Question FOUR**

With reference to ship stability explain why GM (Metacentric height) is considered very critical in the determination of the stability of the ship GM (Metacentric height) **(20 Marks)**

### **Question FIVE**

- a. Give two reasons why transverse watertight bulkheads are important in ship construction **(4 Marks)**  
b. Illustrate with the aid of a sketch the six degrees of motion of a ship. **(6 Marks)**  
c. Explain how a bilge keel is used as anti-rolling device in a ship **(10 Marks)**