



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR:**

**DIPLOMA IN NAUTICAL SCIENCE**

**EMR 2341 : SHIP CONSTRUCTION & STABILITY V**

**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 question ONE (Compulsory) and any other TWO questions.

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

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## **Question ONE**

- Where the displacement of a ship is constant explain the effect on the ships draft when the ships moves from fresh water to sea water **(10 Marks)**
- Define the term Trim and find the change of trim for the following vessel  
MV Tudor Length 150m, breadth 20m, draft 10m even keel, block coefficient 0.8 LGM 200m, cargo of 250T was discharged from a position of 32m from the centre of flotation **(10 marks)**

## **Question TWO**

A ship loaded at a draft of 7m leaves an inland river port to proceed to open sea. To maintain the same draft in salt water how much cargo should the Chief Officer load. **(20 Marks)**

## **Question THREE**

- Define the terms free board, reserve buoyancy, and explain the relationship between each of them **(10 marks)**

- b. Distinguish between a tender and a stiff ship and explain the actions to be taken to remedy stiffness and tenderness **(10 marks)**

**Question FOUR**

- a. Define the following
- i). List
  - ii). Heel **(2 Marks)**
- b. Explain each of the following stresses while stating the structural components to resist each of them in the ship structure
- i). Hogging
  - ii). Sagging
  - iii). Panting **(18 Marks)**

**Question FIVE**

Using appropriate sketches, explain the effect on the stability of a ship whose starboard double bottom tank has been partially filled when she is in her upright position **(20 Marks)**