TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MARINE ENGINEERING

EMR 2118 : SHIP CONSTRUCTION & NAVAL ARCHITECTURE II

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.

Question ONE

With reference to stresses experienced by a ship:

a) Explain the conditions of hogging and sagging   **(6marks)**
b) Name two dynamic loadings on the ship and two static loadings   **(4marks)**
c) In a ship movement illustrate with a sketch the six degrees of freedom   **(10marks)**

Question TWO

a) Classify the four coefficients of for that describe the shape of a ship   **(8marks)**
b) Show that $C_{P} = C_{B} / C_{M}$ **(8marks)**
c) Estimate the block coefficient of a VLCC   **(4marks)**

Question THREE

a) Discuss with the aid of a sketch why metacentric height (GM) is considered as a criterion for the measure of the stability of the ship. **(12marks)**

b) Describe **four** conditions that must prevail when conducting an inclined experiment to obtain successful results. **(8marks)**

Question FOUR

a) Illustrate with the aid of a sketch in a ship arrangement plan where a cofferdam and a deep tank are situated **(10marks)**

b) As a responsible officer in charge of repairs to be conducted inside a cofferdam, discuss the safety procedures that must be observed **(10marks)**

Question FIVE

a) What are the main purposes of fitting a watertight bulkhead **(6marks)**

b) Using a sketch show how a watertight bulk head is constructed. **(10marks)**

c) State how you would carry out a test for the water tight integrity of a repaired watertight bulkhead. **(4marks)**