



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MARINE ENGINEERING

EMR 2120 : MARINE ENGINEERING KNOWLEDGE II (PP1)

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

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

- a) Explain any **FOUR** criteria used to classify pumps. (8 marks)
- b) Using sketches, explain the working principles of the following pumps;
 - i. Centrifugal
 - ii. Piston
 - iii. Lobe (12 marks)

Question TWO

- a) Sketch a typical fire tube boiler showing all the components and explain its working principles. (10 marks)
- b) Explain any **FIVE** factors to be considered when selecting a steam plant for a passenger vessel (10 marks)

Question THREE

- a) Explain any FIVE similarities between an Air conditioning and a refrigeration system. 10 marks)
- b) Sketch and explain a schematic diagram for a typical centralized hybrid (70% recycled air) air conditioning unit serving three rooms. (10 marks)

Question FOUR

- a) Explain the classes of fire. (10 marks)
- b) Sketch a schematic diagram of a typical fire fighting system on the deck of an oil tanker. (10 marks)

Question FIVE

- a) State any EIGHT precautions to be observed when maintaining and servicing of a marine engine (8 marks)
- b) Using sketches, explain the following engine piston configurations;
 - i. In-line
 - ii. Vee
 - iii. Box