



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology
Department of Mechanical & Automotive Engineering
UNIVERSITY EXAMINATION FOR:
Diploma Marine Engineering
EMR 2202 : GENERAL ENGINEERING KNOWLEDGE
END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2016
TIME: 2 HOURS
DATE: Pick Date Dec 2016

Instruction to Candidates:

You should have the following for this examination

- *Answer booklet*
- *Non-Programmable scientific calculator*

This paper consists of **FIVE** questions. Attempt **ANY THREE** questions.
Maximum marks for each part of a question are as shown.

Do not write on the question paper.

Question ONE

- a) Differentiate between Fire tube boilers and Water tube boilers. **6 marks**
- b) State any SEVEN requirements that a Boiler should fulfill. **14 marks**

Question TWO

- a) Briefly explain how Waste Water evaporators work. **4 marks**
- b) State and explain the physical properties that influence the selection of an evaporator. **16 marks**

Question THREE

- a) Explain heat exchangers according to the following classification:
- i) Surface Compactness
- ii) Number of Fluids **10 marks**

- b) Explain the following special considerations which affect materials selection for a Heat Exchanger:
- i) Physical properties
 - ii) Mechanical properties
 - iii) Corrosion resistance
- 10 marks**

Question FOUR

- a) Differentiate between Boiling and Evaporation. **5 marks**
- b) Explain the following boiling processes: i) Pool boiling
ii) Flow boiling **15 marks**

Question FIVE

- a) Name any EIGHT parts of a reciprocating compressor. **4 marks**
- b) There are two general groups of air compressors; positive displacement and continuous flow. Explain these two general groups. **16 marks**