TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL ENGINEERING

EHL 2103: REFRIGERATION AND AIR CONDITIONIG I

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2HOURS

DATE: Pick DateSep 2018

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.

QUESTION ONE

(a) Explain any FIVE uses of refrigeration and air conditioning in various fields
(10Marks)

(b) Using a block diagram, show elements/components layout in a commercial refrigeration cycle
(10Marks)

(c) Describe any FIVE properties of an ideal refrigerant

(10Marks)

QUESTION TWO

(a) With the aid of a diagram, describe the refrigeration unit electrical starting devices circuit.
(10Marks)

(b) Describe any FIVE environmental adverse effects due to ozone depletion
(10Marks)

QUESTION THREE

(a) Using sketches, show the differences between an accumulator and a liquid receiver
(8Marks)

(b) With the aid of a sketch, explain the operation of a system analyzer.
(12Marks)

QUESTION FOUR

(a) Describe the **$3R_s$** in refrigeration and air conditioning fields
(6Marks)

(b) Using a block diagram, show;

(i) Equipment setup for a refrigerant recovery procedure

(ii) Describe the process in b (i) (14Marks)

QUESTION FIVE

(a) Describe any FOUR leakage detecting methods in refrigeration practical exercises/ practices
(8Marks)

(b) Sketch the atom structures for the following refrigerants as per ASHRAE classification:

(i) R13

(ii) R218

(iii) R143

(iv) R134 (12Marks