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 CONDITIONING

END OF SEMESTER EXAMINATION

SERIES:DECEMBER2016

TIME:2HOURS

DATE:9 DEC2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of five questions. Attemptany THREE 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) Describe any FIVE properties of an ideal refrigerant
(10Marks)

QUESTION TWO

(a) Describe the refrigeration unit electrical starting devices circuit operation with the aid of a sketch
(10Marks)

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

QUESTION THREE

(a) Sketches to show the differences between an accumulator and a liquid receiver
(8Marks)

(b) Explain with the aid of a sketch the manifold system analyzer including hose its operation
(12Marks)

QUESTION FOUR

(a) User a block diagram to describe a commercial refrigeration cycle
(14 Marks)

(b) Sketch to show the THREE positions of a service valve
(6 Marks)

QUESTION FIVE

(a) Describe any FOUR leakage detecting methods in refrigeration and air conditioning systems
(8Marks)

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

(i) R13

(ii) R218

(iii) R143

(iv) R134 (12Marks