**TECHNICAL UNIVERISTY OF MOMBASA**

# Faculty of Engineering & Technology

**DEPARTMENT OF MEDICAL ENGINEERING**

DIPLOMA IN MEDICAL ENGINEERING (DME 14)

**EHL 2206: STEAM SYSTEMS**

SPECIAL/SUPPLEMENTARY EXAMINATION
**SERIES:** FEBRUARY 2015
**TIME:** 2 HOURS

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

**Question One (Compulsory)**

**a)** Figure 01 shows a vertical atutoclave. Name parts marked 1+09 and state the function (s) of each part **(18 marks)**

**b)** With the aid of a sketch, explain the THREE methods used to remove/expel air from the autocrave **(12 marks)**

**Question Two**

**a)** With aid of a sketch/graph, explain porous load sterilization cycle **(10 marks)**

**b)** (i) Explain the term "Disinfection"
(ii) Describe any FOUR methods of disinfection in used in a hospital **(10 marks)**

**Question Three**

**a)** (i) State any ONE advantage and any THREE disadvantages associated with Ethylene oxide sterilization
(ii) State any SIX inspections and cleaning to be carried out in an autocrave **(10 marks)**

**b)** (i) Explain the TWO basic types of steam sterilization on the basis of air evacuation/removed. **(10 marks)**
(ii) State FOUR parameters for steam sterilization **(10 marks)**

**Question Four**

**a)** Explain the term "calorific value" of a material **(3 marks)**

**b)** Describe the THREE types of steam **(9 marks)**

**c)** Explain the FOUR causes of steam losses during steam distribution/transportation **(8 marks)**

**Question Five**

**a)** 200 litres of water has to be heated from 25$^{o}$ to 50$^{o}$C using steam heat energy. Taking the specific heat capacity of water to be 4.2kj/kg/$^{o}$C, calculate the amount of heat energy lost by steam. **(8 marks)**

**b)** Explain any FOUR reasons why steam is widely used for both heating and drying processes **(12 marks)**