



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 autoclave. 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 autoclave **(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 autoclave **(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° to 50°C using steam heat energy. Taking the specific heat capacity of water to be 4.2kj/kg/°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)**