

TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL ENGINEERING

EHL 2206: STEAM SYSTEMS

END OF SEMESTER EXAMINATION

SERIES: AUGUST 2019

TIME: 2HOURS

DATE: Pick Date **AUGUST 2019**

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) Figure 1 shows a horizontal Autoclave. Name parts marked from 1 to 13 **13 Marks**

b) Differentiate the following:-

- i) Boiler
- ii) Autoclave
- iii) Calorifier

6 Marks

c) With the aid of neat sketches, explain the **THREE** methods used to remove/expel air from an autoclave

11 Marks

Question TWO

a) Explain any **FOUR** reasons why steam is widely used for both heating and drying processes

12 Marks

b) 300 litres of water has to be heated from 20 °C to 60 °C using steam heat energy.

Taking the specific heat capacity of water to be 4.2 kJ/kg/°C, calculate the theoretical amount of heat energy lost by steam

8 Marks

Question THREE

a) i) State any **TWO** advantages and **THREE** disadvantages associated with Ethylene Oxide sterilisation process

ii) State any **SIX** inspection and cleaning to be carried out in an autoclave

10 Marks

b) Autoclaves are completely defined by **THREE** pairs of parameters. List and explain these pairs of parameters

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 transportation/distribution

8 Marks

Question FIVE

1. a) With the aid of sketch/graph, explain Porous load sterilisation cycle **10 Marks**
- b) i) Explain the term “Disinfection.”
- ii) Describe any **FOUR** methods of disinfection in the hospital **10 Marks**

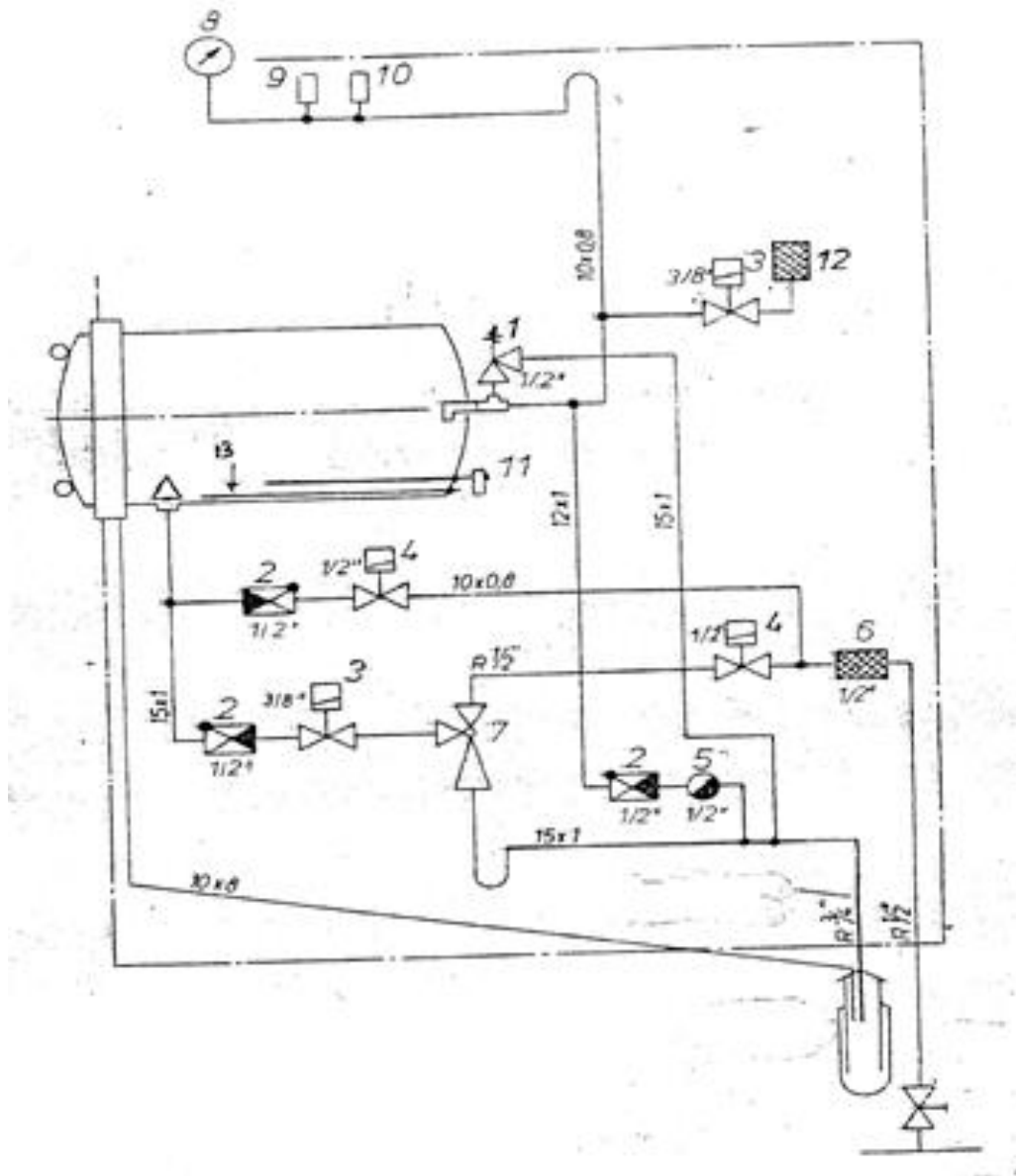


Fig. 1: HORIZONTAL AUTOCLAVE