



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

**DIPLOMA IN MEDICAL ENGINEERING**

**EHL 2203: HOSPITAL SERVICE SYSTEMS**

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2016**

**TIME: 2 HOURS**

**DATE: 9 Dec 2016**

## **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.**

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## Question ONE

a) Kitchen and Laundry departments are very important in the hospital set- up.

Substantiate this statement

**10 Marks**

b) Considering the purity of water, define the following pair of terms:-

- i) Pure water and Clean water
- ii) Hard water and Soft water
- iii) PH Scale and PH Value
- iv) Storage calorifier and Non- storage Calorifier

**12 Marks**

c) Aided by sketches, differentiate the following water distribution systems:-

- i) Branch or Dead –end system
- ii) Grid iron system
- iii) Ring system

**8 Marks**

## Question TWO

1. a) Explain the phrase “water transportation”

**2 Marks**

b) Explain any **FOUR** important technical characteristics of a pump

**4 Marks**

c) Figure 1 shows a Centrifugal pump. Name parts marked i), ii), iii), iv) and v)

**5 Marks**

d) Describe how the pump operates during pumping process

**9 Marks**

## Question THREE

a) Differentiate any **THREE** main groups of kitchen equipment

**3 Marks**

b) Explain the **FOUR** energy requirements of a standard kitchen

**4 Marks**

c) Explain the important factors to be considered when designing a kitchen for a level 5 county hospital

**13 Marks**

## Question FOUR

a) Differentiate the **FIVE** materials from which pipes are made from

**15 Marks**

b) Using sketches in good proportions, differentiate the use(s) of the following pipe fittings:-

- i) Reducing coupling/socket  $3/4 \times 1/2$
- ii)  $90^\circ$  Elbow
- iii) Plug
- iv)  $1 \times 3/4 \times 1/2$  Reducing T
- v) Cap

**5 Marks**

### Question FIVE

a) Describe the **THREE** main reasons for storing water in the tanks before use **9 Marks**

b) Using sketches, differentiate the **TWO** methods of determining the water level/amount in the storage tanks **11 Marks**

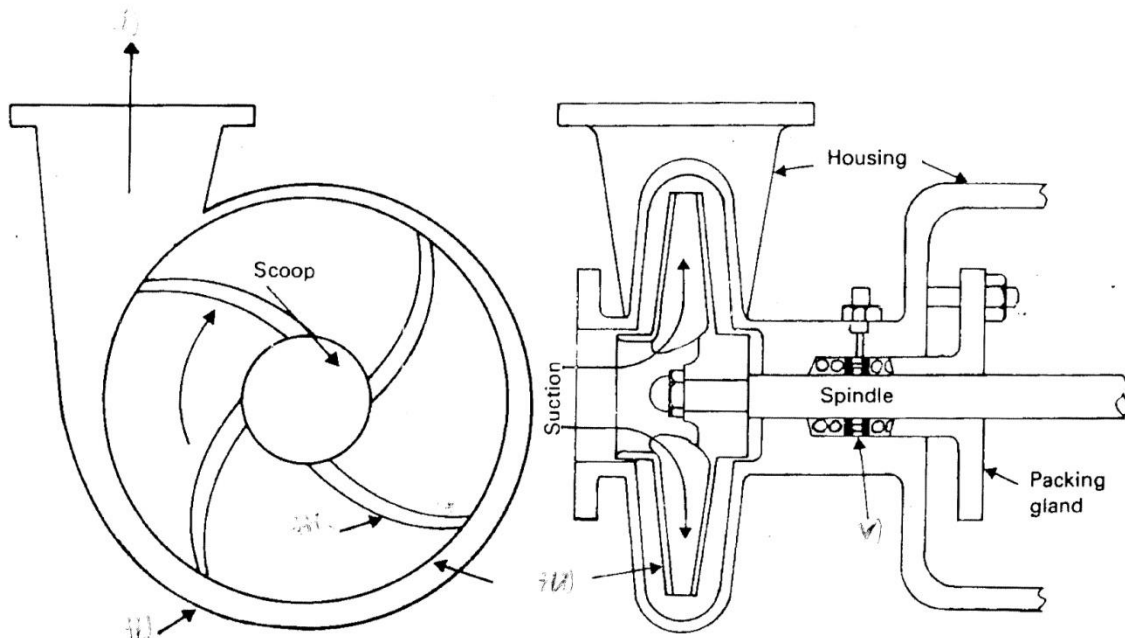


Fig. 1: Centrifugal Pump