



# Technical University of Mombasa

*Faculty of Engineering and Technology*

## DEPARTMENT OF MEDICAL ENGINEERING

DIPLOMA IN MEDICAL ENGINEERING  
(DME JAN 2013 Y2 S1)

**EHL 2204**

**MEDICAL GASES SYSTEMS**

SPECIAL/SUPPLEMENTARY EXAMINATIONS

**SERIES:** JUNE 2013

**TIME:** 2 HOURS

### INSTRUCTIONS TO CANDIDATES:

You should have the following for this examination

- Answer booklet

This paper consists of FIVE questions.

Question **ONE** is **COMPULSORY**

Attempt any other **TWO** questions

This paper consists of **4 PRINTED** pages

**QUESTION ONE (COMPULSORY)**

- (a) Define the term Medical Gases. **(2 marks)**
- (b) Sketch and label a layout of a main cylinders store for both Medical and Hospital Gases. **(10 marks)**
- (c) Explain any **FOUR** alarm display status of a manifold system. **(8 marks)**
- (d) Explain the **FIVE** effects/uses of medical gases to a patient. **(10 marks)**

**QUESTION TWO**

- (a) With the aid of a labeled sketch and describe the operation of an oxygen concentrator. **(12 marks)**
- (b) Explain any **FOUR** harsh conditions that an oxygen concentrator should withstand as recommended by WHO. **(8 marks)**

**QUESTION THREE**

- (a) List any **FIVE** Personal Involved in permit to work procedures. **(5 marks)**
- (b) List any **FIVE** requirements/recommendations of a main cylinders store for both Medical and Hospital gases **(5 marks)**
- (c) Explain any **FIVE** of the Authorized Person in permit tool work procedures **(10 marks)**

#### **QUESTION FOUR**

Figure 1 represents a liquid Oxygen Plant referred to as a vacuum Insulated Evaporator (V.I.E)

(a) Name the features marked 1 to 10.

**(10 marks)**

(b) Describe its operation.

**(10 marks)**

**QUESTION FIVE**

(a) Describe the colour and shape identification of the **FIVE** MPGVI terminal socket outlet units.

**(10**

**marks)**

(b) Sketch and label a Central Vacuum plant.

**(10 marks)**

