



TECHNICAL UNIVERSITY OF MOMBASA  
**Faculty of Engineering &  
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
**DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 13J)**

EBC 2205: WORKSHOP TECHNOLOGY & PRACTICE

**END OF SEMESTER EXAMINATION**  
SERIES: DECEMBER 2013  
**TIME ALLOWED: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions

Maximum marks for each part of a question are as shown  
This paper consists of **TWO** printed pages

### Question One

- a) State any TEN rules and regulations with regard to workshop safety. **(10 marks)**
- b) Using sketches, explain the working principles of the following:
- (i) A volute impellor centrifugal pump
  - (ii) A radial 4 piston reciprocating pump **(10 marks)**

### Question Two

- a) State and explain any FIVE differences in the working principles between Diesel and Petrol engines **(10 marks)**
- b) Using sketches, explain the working principles of:
- (i) A diaphragm flow control valve
  - (ii) A spring-return pressure relief valve **(10 marks)**

### Question Three

- a) Using sketches, show the important parts of:
- (i) A reciprocating piston-cylinder arrangement
  - (ii) A spark plug **(10 marks)**
- b) Explain the SIX classes of FIRE **(10 marks)**

### Question Four

- a) Define the following terminologies:
- (i) Semi-conductor
  - (ii) Anode
  - (iii) Cathode
  - (iv) Insulator
  - (v) Electromotive force **(10 marks)**
- b) Sketch the following electrical symbols:
- (i) Diode
  - (ii) Battery
  - (iii) Capacitor
  - (iv) Lamp
  - (v) Switch **(10 marks)**

### Question Five

- a) Sketch a domestic layout diagram consisting of the following:
- (i) A consumer control unit with two circuit breakers
  - (ii) Two lamps controlled independently by two switches
  - (iii) Two socket outlets in parallel
  - (iv) Earthing terminal **(10 marks)**

b) State and explain the usage of any FIVE workshop hand tools and equipment

**(10 marks)**