



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
**DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBC)
DIPLOMA IN ARCHITECTURE (DA)**

EBC 22011: WORKSHOP TECHNOLOGY III

END OF SEMESTER EXAMINATION

SERIES: APRIL 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 **THREE** printed pages

Question One

- a) Give the colour code of the following signs as indicated under health and safety at work Act.
- (i) No smoking
 - (ii) Not drinking water
 - (iii) Risk of fire
 - (iv) First aid
 - (v) Hand protection
- (2 ½ marks)**
- b) Give the general procedure of first aid to a victim:-
- (i) Mouth to mouth method with an adult
 - (ii) Severe bleeding
- (5 marks)**
(2 ½ marks)
- c) State how each of the following workshop tools is used suitably:
- (i) Scriber
 - (ii) Try square
 - (iii) Dividers
 - (iv) Odd-leg calipers
 - (v) Chisel
 - (vi) Scraper
 - (vii) Reamer
 - (viii) Taps
 - (ix) Tin snips
 - (x) Dies
- (10 marks)**

Question Two

- a) State the function of an internal combustion engine. **(4 marks)**
- b) Using simple diagrams explain the cycle of operation of a (4) four stroke petrol engine. NB. Show the direction and position of valves in each stroke. **(16 marks)**

Question Three

- a) (i) State the three obligations of an employee as in the health and safety at work act. **(6 marks)**
(ii) Explain the precautions that one takes before starting to work on a faulty electrical installation. **(4 marks)**
- b) State the **THREE** colours used for the three phases. **(3 marks)**
- c) Explain the function of a:
- (i) Circuit breaker
 - (ii) Distribution board
- (6 marks)**
- d) State the function of a bending spring. **(1 marks)**

Question Four

- a) Explain the principles of how domestic installations are protected from
- (i) Over current faults
 - (ii) Earth leakage current faults
- b) Name **SIX** tools normally used in electrical installations. **(6 marks)**
- c) Name **FOUR** types of power generating plants. **(4 marks)**
- d) Explain as to why a single pole switch in the lighting circuit is normally connected on the live wire. **(4 marks)**

Question Five

- a) With the aid of a labeled diagram show how power from a lighting point in one room can be tapped to provide lighting point in the next room by looping. **(6 marks)**
- b) Draw a labeled diagram of ring circuit of 5. 13Amp socket outlet with the supply of a 13Amp socket outlets supplied from a consumer's distribution board. **(8 marks)**
- Draw a labeled diagram of a light being controlled by two 2way switches. **(6 marks)**