



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

Faculty of Engineering and Technology

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

INSTITUTIONAL BASED PROGRAMME

DIPLOMA IN CIVIL ENGINEERING WITH COMPUTER AIDED DESIGN
DIPLOMA IN BUILDING & CIVIL ENGINEERING

EBC 2304: WORKSHOP TECHNOLOGY II

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2011

TIME: 2 HOURS

Instructions to Candidates:

This paper consists of **FIVE** questions

- *Answer Booklet*
- *Scientific Calculator*
- *A set of drawing instruments*

Answer question **ONE (COMPULSORY)** in **SECTION A** and any other **TWO** questions in **SECTION B**

Marks are indicated for each part of the question

This paper consists of **THREE** printed pages

SECTION A (Answer all questions in this section – 30 marks)

Question One

- a) State **FOUR** measures that are considered in the use of a hacksaw tool (4 marks)
- b) Briefly explain **FIVE** precautions considered in safety of machine tools (10 marks)
- c) State the employers obligations based on Health and safety act (2 marks)
- d) Sketch a well labeled illustration of a 3-phase 4 wire system for AC suppliers as a domestic supply distribution (6 marks)
- e) Define the following terms as used in electrical technology
 - (i) Armour
 - (ii) Sheath
 - (iii) Insulator(6 marks)
- f) A worker in an electrical workshop could be a major cause of accidents. Explain your opinion. (2 marks)

SECTION A (Answer all questions in this section - 20 Marks each)

Question Two

- a) (i) Explain the difference between parallel and series types of electrical circuits
- (ii) Consider the following circuit (fig.1)

Fig. 1

Determine:

- (i) The Total capacitance of the circuit above (4 marks)
- (ii) The charge (Q) passing through the $5 \mu F$ capacitor (3 marks)

- b) Write down the procedure for giving First Aid to a person Receiving Electric shock (4 marks)
- c) (i) Define 'Earthing' a used in Electrical Installations (1 marks)
- (ii) Give **TWO** reasons for the importance of Earthing engineering structures (2 marks)

Question Three

- a) Define any **FOUR** Electrical Quantities and state their SI units of measurements (5 marks)
- b) Describe an Electrical supply system stating voltages at each stage (4 marks)
- c) State the importance of the Neutral Conductor in electrical circuits (1 mark)
- d) Describe an Electrical circuit using a well labeled diagram (3 marks)
- e) Define the following Electrical terms:
- (i) Earth fault
 - (ii) Short circuit
 - (iii) Open circuit
- (3 marks)
- f) Illustrate using a well labeled diagram, the sequence of control equipment starting from intake point for a single phase supply for Domestic Installation (4 marks)

Question Four

- a) Explain **THREE** methods of priming a pump (6 marks)
- b) Briefly explain the operation of compression ignition engine operating on four strokes (14 marks)

Question Five

- a) Explain the procedure of finishing operation used during filing stating the suitable file for the purpose (10 marks)
- b) Explain the production of screw threads on the bench using hand tools (11 marks)
- c) Explain the setting of a hacksaw blade (2 marks)
- d) Stat the difference between a reamer and a drill (3 marks)