



**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

**((A Constituent College of JKUAT)**

(A Centre of Excellence)

# **Faculty of Engineering & Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**DIPLOMA IN BUILDING & CIVIL ENGINEERING**

**DIPLOMA IN ARCHITECTURE**

EBC 2128: WORKSHOP TECHNOLOGY II

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**SERIES: OCTOBER 2012**

**TIME: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*
- *Scientific Calculator*

This paper consists of **FIVE** questions.

Answer question **ONE (COMPULSORY)** any other **TWO** questions  
Maximum marks for each part of a question are as shown  
This paper consists of **THREE** printed pages

**Question One (Compulsory - 30 marks)**

- a) State **THREE** responsibilities of all employees under Health and Safety at Work Act 1974 **(13 marks)**
- b) Explain **THREE** safety precautions that you take when using a hand grinder **(3 marks)**
- c) State **THREE** safety precautions that you observe when filing. **(3 marks)**
- d) Explain **FOUR** measures taken to ensure proper care of hand cutting tools. **(4 marks)**
- e) The major cause of accidents in the electrical workshop is through the workers. Explain **(3 marks)**
- f) Explain the role of priming in pump technology **(4 marks)**

**Question Two (20 marks)**

- a) Explain the difference between a reamer and a drill. **(2 marks)**
- b) Explain **THREE** types of hacksaw blades. **(6 marks)**
- c) State **TWO** applications of screw threads in engineering. **(2 marks)**
- d) Explain using diagrams **FOUR** types of files and their applications. **(6 marks)**
- e) State **FOUR** factors to consider in proper use of hacksaws. **(4 marks)**

**Question Three (20 marks)**

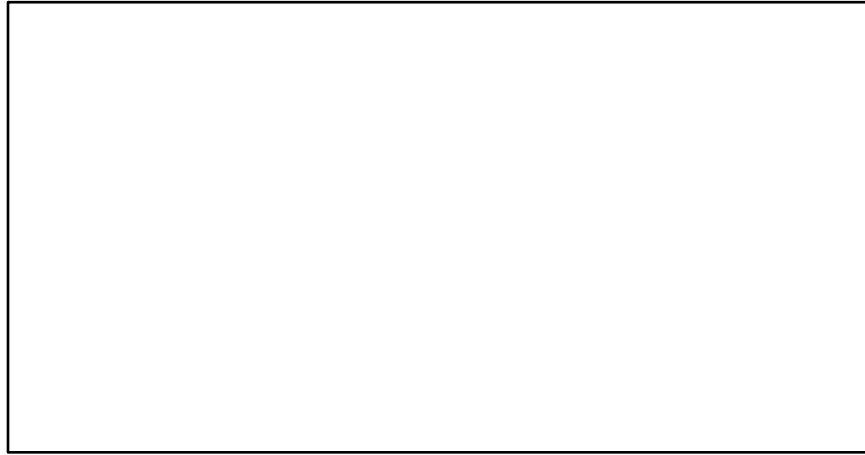
- a) Discuss briefly how a four stroke petrol engine operates.
- b) An engine with a mechanical problem was found to exhude black exhaust and had pitted cylinder head. What could have been the problem?
- c) Explain the role of camshaft in the engine.

**Question Four (20 marks)**

- a) Explain a Grid system. **(2 marks)**
- b) With a well labeled diagram, describe a single phase electrical supply system. **(6 marks)**
- c) Using a well labeled diagram, explain a 3-phase 4 wire system for AC supplies. **(3 marks)**
- d) List **THREE** major types of consumer's circuits and state the cable size for each circuit and current rating for protective device of each circuit. **(5 marks)**
- e) Explain Earthing and how it is achieved in Electrical Installations. **(4 marks)**

**Question Five (20 marks)**

- a) Explain the difference between parallel and series circuits as used in electrical connections **(6 marks)**
- b)



Determine:

- i) The equivalent resistance of the circuit
  - ii) The current passing through the  $2\ \Omega$  resistor and  $15\ \Omega$  resistor. **(9 marks)**
- c) Define the following terms and state the units used for their measurement.
- i) Electric current
  - ii) Electromotive force
  - iii) Potential difference
  - iv) Resistance capacitance **(5 marks)**