



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

DIPLOMA IN BUILDING & CIVIL ENGINEERING

EBC 2201: WORKSHOP TECHNOLOGY & PRACTICE III

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2014

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 of the **FIVE** questions

All questions carry equal marks

Maximum marks for each part of a question are as shown

Use neat, large and well labeled diagrams where required.
This paper consists of **THREE** printed pages

Question One

- a) Explain the responsibilities of all the employees according to Operational Health and Safety Act. **(3 marks)**
- b) Explain the safety precautions that you observe when using a hand grinder. **(3 marks)**
- c) Explain the safety precautions observed when filing. **(3 marks)**
- d) Explain the measures taken to ensure proper care of hand cutting tools **(4 marks)**
- e) Most of the accidents that happen in the workshop are caused by the worker. Explain. **(3 marks)**
- f) Explain the meaning of priming in the operations of water pumps and why it is important. **(4 marks)**

Question Two

- a) Explain the functional difference between a reamer and a drill **(2 marks)**
- b) Explain the difference between the three common types of hacksaw blades and their operational features. **(6 marks)**
- c) State TWO applications of screw threads in Engineering. **(2 marks)**
- d) By use of suitable sketches, explain where the following files are applied:
 - (i) Flat hand file
 - (ii) Three square file
 - (iii) Half round file
 - (iv) Round file **(6 marks)**
- e) State FOUR factors to consider in proper use of hacksaw. **(4 marks)**

Question Three

- a) Explain the operation of a four stroke petrol engine **(12 marks)**
- b) An Engine with a mechanical problem was found to exhaust very black smoke and its cylinder head was pitted all over. Suggest what could have been the cause of the problem. **(6 marks)**
- c) Explain the role of camshaft in an Engine **(2 marks)**

Question Four

- a) Identify TWO distinct operations in hand filing and explain using suitable sketches how they are accomplished and the types of files applied in each case. **(8 marks)**
- b) Explain using suitable sketches hand external threads are made at the bench. **(10 marks)**

c) Explain the purpose of tapes on the first tap in the cutting of internal threads. **(2 marks)**

Question Five

a) Explain the difference between parallel and series circuits. **(6 marks)**

b) Explain the following terms as applied in vertical power principles:

(i) Current

(ii) Resistance

(iii) Electromotive force

(iv) Potential difference

(v) Electric charge

(5 marks)

c) Describe an Electrical power supply system **(4 marks)**

d) Describe using a well labeled diagram, a 2-wire De Supply system **(5 marks)**