



TECHNICAL UNIVERSITY OF MOMBASA

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

UNIVERSITY EXAMINATION

FOR

DIPLOMA IN BUILDING AND CIVIL ENGINEERING

EBC 2201: WORKSHOP TECHNOLOGY AND PRACTICE III THEORY

END OF SEMESTER EXAMINATION

SERIES: APRIL

TIME: 2HOURS

DATE: APRIL 2016

Instructions to candidates

You should have the following for this examination

- **Answer booklet, examination pass and student ID**
- **This paper consist of five questions**
- **Question ONE is compulsory**
- **Attempt any ONE question from each section A and B**
- **All questions carry equal marks**
- **Do not write on the question paper.**

QUESTION ONE

- a) Explain the purpose of the health and safety act and state **TWO** main aims. **(4marks)**

- b) i. State **TWO** employees and **TWO** employer's responsibilities in Health and Safety Act regulations. **(3marks)**

ii. State any **FOUR** general health and safety precautions that must be observed in any workplace. **(6marks)**

c) i. Define an accident

ii. State **FIVE** causes of accidents in workshops and factories

iii. Explain why accidents and near miss accidents have to be reported and investigated.

iv. Describe the contents of an accident investigation. **(10marks)**

SECTION A

QUESTION TWO

a) i. Discuss the main purpose of using hand tools and state two reasons when it is only hard tools that must be used. **(3marks)**

ii. State any **EIGHT** common basic hand tools commonly found in most mechanical workshops.

iii. State **TWO** main reasons for using powered hand tools. **(10marks)**

b) i. Define heat engines and the **TWO** classifications of such engines with examples **(4marks)**

ii. State two advantages of EC and IC engines

iii. State two parts common to petrol engine and diesel engine only. **(5marks)**

QUESTION THREE

a) i. Describe the purpose of pumps and **TWO** most useful design features for consideration. **(6marks)**

ii. Explain the **FOUR** important features for consideration when selecting the best water pump. **(5marks)**

b) i. State and describe the **TWO** common types of water pumps design best suited for the construction industry stating model for each design. **(7marks)**

ii. Describe the principle of operation of the centrifugal pump and two main part of which form the heat of the pump.

c) State two most probable problem for each of the following conditions

i) If an engine does not deliver enough water

ii) If the pump does not develop enough pressure **(2marks)**

SECTION B

QUESTION FOUR

- a) i. Define the following terms with reference to earthing
- i) earth lead
 - ii) earth electrode **(4marks)**
- b) State
- i) The two types of earthing
 - ii) Three factors affecting earth resistivity
 - iii) Three types of earth electrodes **(8marks)**
- c) With the aid of an earth fault loop path diagram explain the following.
- i) Earth fault loop impedance
 - ii) Earth fault loop path **(6marks)**

QUESTION FIVE

- a) i. State **FOUR** likely faults in electrical installations
- ii. Explain **FOUR** attributes required of an electrical protective device. **(12 marks)**
- b) i. Define a wiring system
- ii. Explain **THREE** consideration in the selectin of type of wiring system
- iii. State **TWO** mechanisms of corrosion and any **TWO** methods of corrosion protection.
- (8marks)**