



# Machakos University College

(A Constituent College of Kenyatta University)

University Examinations 2013/2014

SCHOOL OF ENGINEERING

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

**Diploma in Building Technology Module II**

**Construction Managements and Workshop Technology (Electrical)**

Date: 25/3/2014

Time: 3 hours

---

## Instructions

1. You should have the following for this examination
  - Answer booklet
  - Scientific Calculator
2. Attempt two questions from each section and any other one question from any section
3. Maximum marks for each part of a question as shown

## SECTION A:

**At least answer any two questions from this Section**

1. (a) Explain the nature of construction industry. (3 marks)  
(b) State five types of contracts. (5 marks)  
(c) Explain the following bodies associated with building and civil engineering
  - (i) Architects Association of Kenya
  - (ii) Local Authorities

- (iii) Board of Registration for architects and Quantity surveyor
  - (iv) Engineers Registration of Kenya (12 marks)
2. (a) Define the term management. (2 marks)
  - (b) Explain five functions of management. (10 marks)
  - (c) Describe four principles of management. (8 marks)
  3. (a) Outline three weaknesses of formal organization. (3 marks)
  - (b) Explain six roles of informal organization. (12 marks)
  - (c) State five functions to consider when purchasing new equipments. (5 marks)
  4. (a) State eight steps in planning. (4 marks)
  - (b) Outline four means of formation organizations structure. (5 marks)
  - (c) Describe the following types of formal organizations structure
    - (i) Line organization
    - (ii) Line and staff organization
    - (iii) Matrix organization (9 marks)
  - (d) Define the term organization. (2 marks)

## **SECTION B**

### **WORKSHOP TECHNOLOGY (ELECTRICAL)**

5. (a) Outline the factors that determine the choice of wiring system. (5 marks)
- (b) Name 6 methods of wiring system that uses sheath as a mechanical protection. (6 marks)
- (c) Name four types of metallic circuits used in wiring system. (5 marks)
- (d) Name five forms of trunking in a wiring system. (5 marks)
6. (a) Outline 8 types of cable available in the market for wiring system. (8 marks)
- (b) Describe three types of switches used in wiring. (6 marks)

In the fig. above

- (i) Determine the voltage across resistor  $R_3$  if the total resistance of the circuit is  $100R$  (2 marks)
  - (ii) Determine the current flowing through resistor  $R_1$  (2 marks)
  - (iii) Find also the voltage of the resistor  $R_2$  (2 marks)
7. (a) List 12 general workshop rules to be observed in any workshop. (12 marks)
- (b) With the aid of sketches, (diagrams) Describe how a radial circuit is installed from the service cable to the power socket. (8 marks)
8. (a) Define the following terms
- (i) Voltage
  - (ii) Current
  - (iii) Power
  - (iv) Frequency (4 marks)
- (b) What are the units for measuring the quantities mentioned in question 8 (a) above and instruments for measuring them. (4 marks)
- (c) Briefly describe the following source of power
- (i) Geo thermal power
  - (ii) Hydro Power
  - (iii) Solar Power
  - (iv) Wind Energy (12 marks)