



# MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)  
University Examinations for 2014/2015

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

FIRST SEMESTER EXAMINATION FOR DIPOLMA IN BUILDING TECHNOLOGY

2705/203: CONSTRUCTION MANAGEMENT AND WORKSHOP TECHNOLOGY  
ELECTRICAL

DATE: 16/3/2015

TIME: 2:00 – 4:00 PM

---

## *Instructions*

- *Answer two questions from Section A, two from section B and any One question form any of the two sections*

## SECTION A: CONSTRUCTION MANAGEMENT

- Briefly describe functions of management. (10 marks)
  - Explain the concept of span of control in an organization. (7 marks)
  - Outline three factors that influence span of control (3 marks)
  
- Outline what is likely to happen if a site is inefficiently planned
    - Identify five preliminary items to be considered when planning a site layout. (7 marks)
  - Explain four relationships that exist between staff in an organization. (8 marks)
  - Distinguish between power and authority. (5 marks)
  
- Define the term management. (2 marks)
  - Briefly explain the following:-

- (i) Organization structure
  - (ii) Organization chart
  - (iii) Chain of command (9 marks)
  - (c) (i) State two essentials of an efficient filing system. (2 marks)
  - (ii) Outline two roles of each of the following
    - (i) Quantity surveyor
    - (ii) Clerk of works
  - (d) Outline five roles of the architectural association of Kenya. (5 marks)
4. (a) Describe the following methods of tendering giving three advantages of each
- (i) Open tendering
  - (ii) Selective tendering (11 marks)
- (b) Using examples, briefly describe three types of cost reimbursement contracts. (9 marks)

**SECTION B: WORKSHOP TECHNOLOGY ELECTRICAL**

5. (a) Define the following terms as applies to electricity
- (i) Voltage
  - (ii) Current
  - (iii) Power
  - (iv) Frequency. (4 marks)
- (b) Electricity can be obtained from several sources around the world. Describe any five sources of AC Supply. (10 marks)
- (c) Compare and contrast the AC and DC as a sources of power supply. (6 marks)
6. (a) (i) Ohms law
- (ii) Kirchoffs first law (2 marks)
- (b) From Kirchoffs theory, show that

$$\frac{1}{RT} = \frac{1}{R1} + \frac{1}{R2} + \frac{1}{R3}$$

- (c) A 12V battery is connected in a circuit having three series connected resistors having resistance of  $4\Omega$ ,  $9\Omega$  and  $11\Omega$ . Determine the current flowing through and the voltage across the  $9\Omega$  resistor  
Find also the power dissipated in the  $11\Omega$  resistor. (6 marks)
- (d) Three resistors  $R_1 = 20\Omega$ ,  $R_2 = 40\Omega$ , and  $R_3 = 40\Omega$  are connected in parallel. The component currents  $I_t$  is 6A (4 marks)
- (i) How high are the component current  $I_2$  and  $I_3$
- (ii) What is the total current
- (iii) What is the voltage
7. (a) Plastics conduits are one of the most common material in the construction sector nowadays. Discuss. (8 marks)
- (b) Name four types of wiring accessories available on the market. (4 marks)
- (c) Describe any three types of wiring systems. (8 marks)
8. (a) Define the following terms:-
- (i) Switch
- (ii) Junction box (2 marks)
- (b) With the aid of a sketch describe three types of switches available on the market. (6 marks)
- (c) List three ways of overload protection. (3 marks)
- (d) List 9 general workshop safety rules and regulations in a workshop. (9 marks)