

2705/203
CONSTRUCTION MANAGEMENT I
AND WORKSHOP TECHNOLOGY II
June/July 2023
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN BUILDING TECHNOLOGY

MODULE II

CONSTRUCTION MANAGEMENT I AND WORKSHOP TECHNOLOGY II

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Scientific calculator;

Drawing instruments.

This paper consists of EIGHT questions in TWO sections; A and B.

Answer FIVE questions choosing THREE questions from section A and TWO questions from section B.

All questions carry equal marks.

Maximum marks for each part of a question are indicated.

Candidates should answer the questions in English.

This paper consists of 4 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A: CONSTRUCTION MANAGEMENT I

Answer **THREE** questions from this section.

1. (a) State **four** roles of a clerk of works in a contract. (4 marks)
- (b) Outline **four** factors considered before entering a contract. (6 marks)
- (c) Explain **five** types of contract documents used in the construction industry. (10 marks)
2. (a) Differentiate between each of the following types of contracts:
 - (i) 'all-in' and lumpsum;
 - (ii) 'labour only' and 'package deal';
 - (iii) 'target cost' and 'design and build'.(12 marks)
- (b) (i) Explain the term 'serial tendering'. (4 marks)
- (ii) State **two** advantages of serial tendering. (4 marks)
- (c) Explain **two** principles of organization. (4 marks)
3. (a) Explain the term 'motivation' as used in an organization. (2 marks)
- (b) With the aid of charts, explain **three** types of organizational structures stating **two** advantages for each. (18 marks)
4. (a) State **five** roles of each of the following in the construction industry:
 - (i) Ministry of labour;
 - (ii) Engineers Board of Kenya.(10 marks)
- (b) Explain **five** types of contractors in the construction industry. (10 marks)
5. (a) Explain **five** factors considered in the design of a site layout plan. (10 marks)
- (b) Explain **five** factors that influence the layout of a site plan. (10 marks)

SECTION B: WORKSHOP TECHNOLOGY II

Answer *TWO* questions from this section.

6. (a) State **five** factors that affect cable rating. (5 marks)
- (b) Sketch and label a domestic consumer's control unit. (5 marks)
- (c) **Figure 1** shows an electric circuit connected in series.

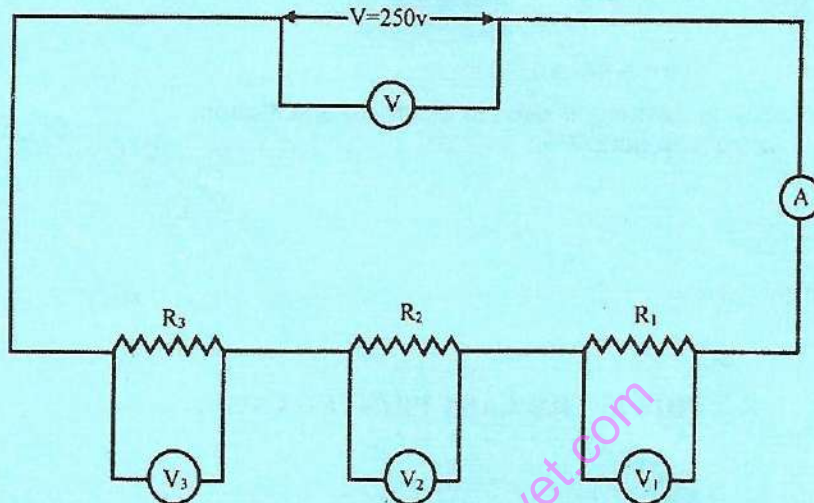


Fig. 1

Using the data provided, determine:

- (i) total current (I);
- (ii) V_2 and V_3 ;
- (iii) value of resistor R_3 .

Data

$$R_1 = 40 \Omega, R_2 = 15 \Omega$$

$$V_1 = 125 \text{ v}$$

(10 marks)

7. (a) Outline **four** IEEE regulations on water heating. (6 marks)
- (b) Outline **four** instruments used in measuring electrical quantities. (6 marks)
- (c) With the aid of schematic diagrams, distinguish a 'joint-box system' from a 'looping-in system'. (8 marks)

8. (a) State **four** advantages of hydro-electric power generation. (4 marks)
- (b) Explain **four** sources of electric energy. (8 marks)
- (c) Explain each of the following type of circuits:
- (i) ring;
 - (ii) radial;
 - (iii) spur. (6 marks)
- (d) Explain the term earthing as used in electrical installation. (2 marks)

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