

2306/306
CONSTRUCTION MANAGEMENT
Oct./Nov. 2022
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN QUANTITY SURVEYING

CONSTRUCTION MANAGEMENT

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Scientific calculator.

This paper consists of EIGHT questions.

Answer FIVE questions.

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 5 printed pages.

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

1. (a) Explain each of the following terms used in contract planning:
- 'Method statement';
 - 'Plant schedule';
 - 'Outline programme'.
- (6 marks)

(b) Table 1 shows the activities and durations of a construction project:

- Draw an arrow network diagram and show the critical path.
 - Using the analysis table, determine the earliest latest and float times.
- (14 marks)

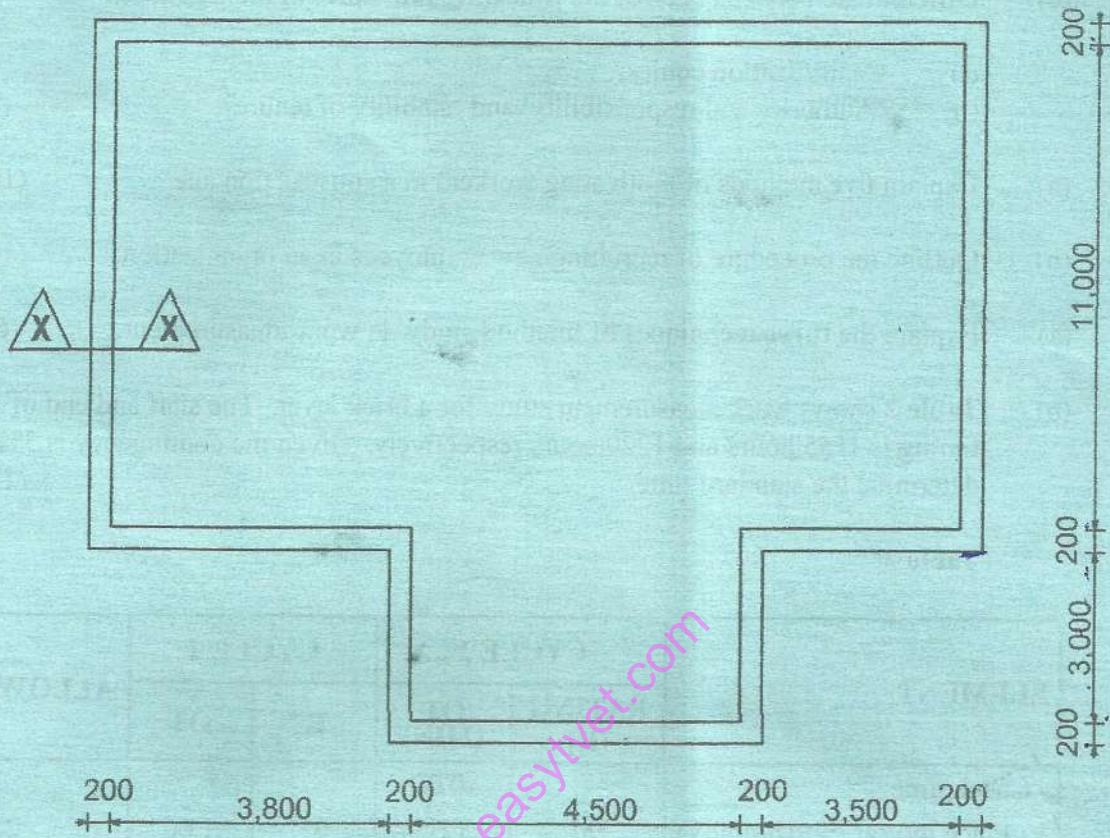
Table 1 : PROJECT ACTIVITIES

Activity	Predecessor	Duration (in weeks)
A	-	3
B	-	6
C	-	8
D	A	10
E	C	2
F	A	7
G	B	5
H	F	13
I	B	9
J	D, E	12
K	H, J	12
L	I	15

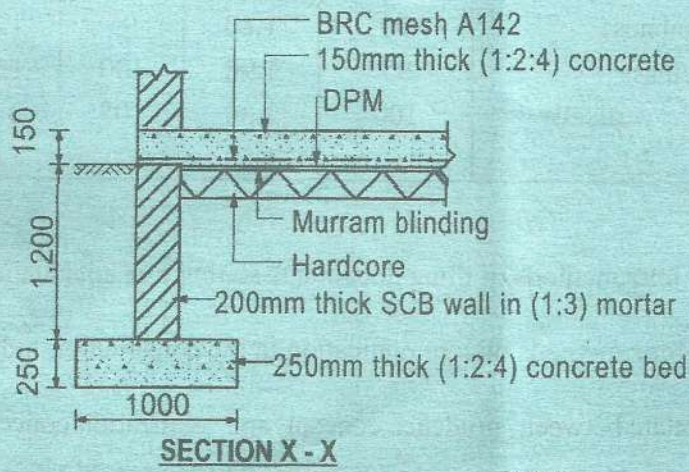
2. (a) State **six** roles of ministry of labour in the construction industry. (6 marks)
- (b) Outline **four** reasons for designing a site layout. (8 marks)
- (c) Explain **four** types of 'industrial relations disputes.' (8 marks)
3. (a) State **four** roles of a 'clerk of works' in the construction industry. (4 marks)
- (b) **Figure 1** shows the plan and section of a building. Using the data provided, determine each of the following quantities of materials required from the foundation to the slab.
- Number of blocks;
 - Tonnes of sand;
 - Tonnes of ballast;
 - Number of 50 kg bags of cement.
- (16 marks)

DATA

- Size of blocks - 440 x 190 x 190 mm
- Motor joint 20 mm
- Density of cement 1440 kg/50 kg bag
- Density of sand 1600 kg/m³
- Density of ballast 1700 kg/m³
- Mortar ratio 1:3



PLAN



SECTION X - X

NOTE:
Dimensions are in millimeters

FIGURE 1

4. (a) (i) Explain the term 'organisation structure' as used in management.
(ii) With the aid of charts explain **two** types of organizational structure. (10 marks)
- (b) Explain the term 'construction management'. (2 marks)
- (c) Differentiate between each of the following principles of management:
(i) Centralization equity;
(ii) 'Authority and responsibility' and 'stability of tenure'. (8 marks)
5. (a) Explain **five** methods of motivating workers in a construction site. (10 marks)
- (b) Outline the procedure of recruiting new employees in an organization. (10 marks)
6. (a) Explain the **three** techniques of 'method study' in work measurement. (6 marks)
- (b) **Table 2** shows work measurement study for a brick layer. The start and end of timing is 1155 hours and 1220 hours respectively. Given the contingency is 3% determine the standard time. (14 marks)

Table 2

ELEMENT	CYCLE 1		CYCLE 2		ALLOWANCES
	RATING (R)	OT (MIN)	R	OT	
- Check time	-	-0.00	-	-	
1. Place mortar (horizontally)	90	1.65	95	1.60	22
2. Lay brick course	80	2.15	85	2.20	25
3. Check straightness	95	1.50	90	1.40	20
4. Check plumbness	90	1.80	95	1.75	24
5. Check levelness	95	1.90	100	1.80	20
6. Place mortar vertically	100	2.30	105	2.15	20
Break	-	1.50	-	2.00	

7. (a) Explain **four** methods of filing documents stating **one** advantage of each. (10 marks)
- (b) Outline **four** methods of communication in the construction industry. (6 marks)
- (c) Differentiate between 'prudence concept' and 'realization concept' (4 marks)

8. Table 3 shows a trial balance extract from the book of Kendi traders as at 31st July 2006. Using the additional information given, prepare;

- (a) Trading, profit and loss account. (11 marks)
- (b) Balance sheet. (9 marks)

Table 3: Trial Balance

	DR Kshs	CR Kshs
Capital		1,494,000
Purchases	500,000	
Sales		850,000
Lands and building	1,700,000	
Returns	35,000	40,000
Carriage inwards	15,000	
Carriage outwards	22,000	
Commissions	16,000	35,000
Stock 1st August	75,000	
Loans		365,000
Discounts	25,000	35,000
Insurance	30,000	
Salaries	36,000	
Drawings	55,000	
Motor vehicle	750,000	
Debtors/creditors	100,000	250,000
Cash at bank		450,000
Cash at hand	50,000	
Furniture	<u>110,000</u>	
	<u>3,519,000</u>	<u>3,519,000</u>

Data:

Stock of goods as at 31st July 2006 Ksh 55,000

THIS IS THE LAST PRINTED PAGE.