

2306/306

CONSTRUCTION MANAGEMENT

Oct./Nov. 2021

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;

Drawing instruments.

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 6 printed pages.

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

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1. (a) State **four** methods of staff appraisal. (4 marks)
- (b) Explain **five** benefits of employees welfare in the construction industry. (10 marks)
- (c) Outline **four** factors that influence the design of a construction site layout. (6 marks)
2. (a) Explain each of the following books of accounts:
- (i) returns day book;
- (ii) ledger book;
- (iii) sales day book;
- (i) petty cash book. (8 marks)
- (b) **Table 1** shows a trial balance extracted from the books of Serious Traders Limited as at 30th June 2018. Prepare the trading, profit and loss accounts for the year ended 30th June 2018 given that the closing stock was worth Kshs. 20,500. (12 marks)

Table 1

	Dr	Cr
Premises	1,400,000	
Debtors and creditors	22,000	30,000
Cash at bank	90,000	
Cash in hand	20,000	
Purchases and sales ✓	140,000	420,000
Stock of goods on 1 st July 2017 ✓	46,000	
Discounts	5,000	2,000
Salaries and wages	50,000	
Commissions		8,000
Power bills	11,500	
Returns	13,000 ✓	19,000
Carriage inwards	5,400	
Carriage outwards	2,300	
Capital		1,355,200
Furniture	29,000	
	<u>1,834,200</u>	<u>1,834,200</u>

3. (a) State **four** roles of suppliers in the construction industry. (4 marks)
- (b) Explain **four** reasons for enhancing discipline in the construction industry. (8 marks)
- (c) Explain **four** non-economic causes of industrial disputes in the construction industry. (8 marks)
4. (a) Differentiate 'an organizational structure' from 'an organizational relationship'. (4 marks)
- (b) (i) With the aid of a chart, explain the hierarchical organizational structure for a construction company. (8 marks)
- (ii) State **four** advantages in (b) (i) above. (8 marks)
- (c) Explain **four** regulations governing employment in the construction industry. (8 marks)
5. (a) State **five** activities conducted in pre-tender planning stage for a construction project. (5 marks)
- (b) **Figure 1** shows a network diagram of a construction project.

- (i) Complete the network diagram and show the critical path.
- (ii) Using analysis table determine earliest, latest and float times.

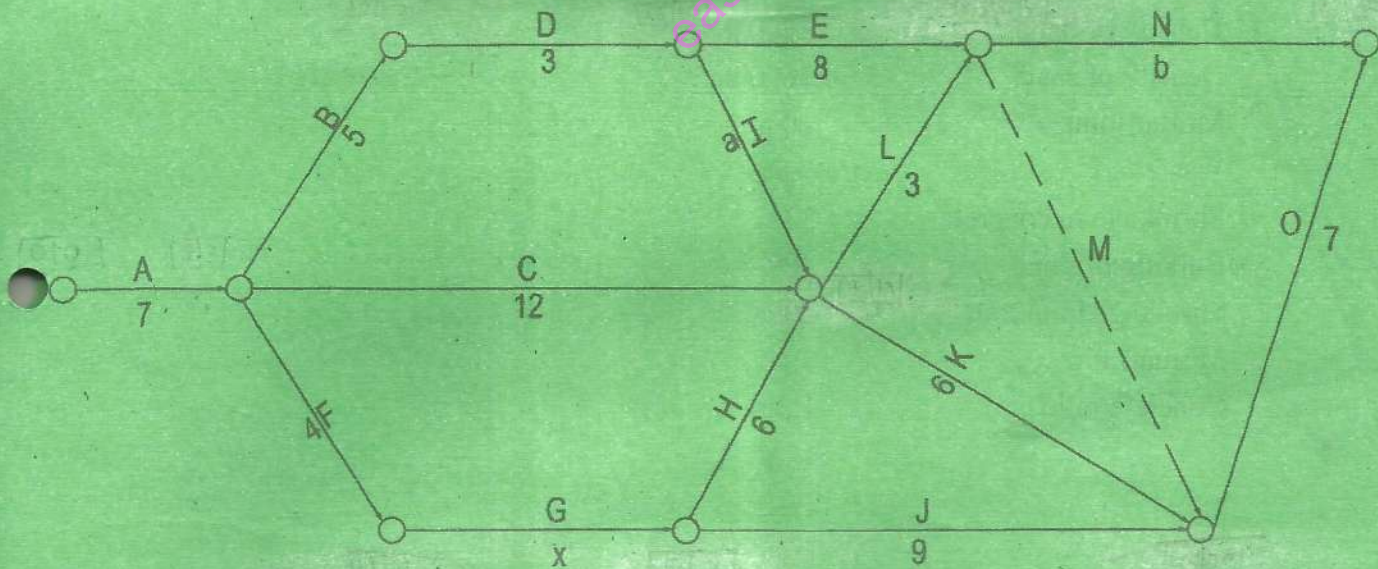


FIGURE 1

NOTE

Duration is in weeks.

Project duration is 45 weeks.

Earliest start of activities L and J is 23 and 17 respectively.

(15 marks)

6. (a) State **four** reasons for construction site meetings. (4 marks)

(b) Explain the storage of each of the following materials on a construction site:

(i) cement;

(ii) sand.

(4 marks)

(c) **Figure 2** shows the plan and section of a water tank stand. Using the data provided, determine each of the following materials required from the foundation up to the slab.

(i) number of blocks;

(ii) number of 50 kg bags of cement;

(iii) sand in tonnes;

(iv) ballast in tonnes.

DATA

Block size 450 x 200 x 200 mm

Density 1440 kg/m³

Density of ballast 1700 kg/m³

Density of sand 1600 kg/m³

Mortar joint 20 mm

Waste 7.5%

Shrinkage in concrete 33%

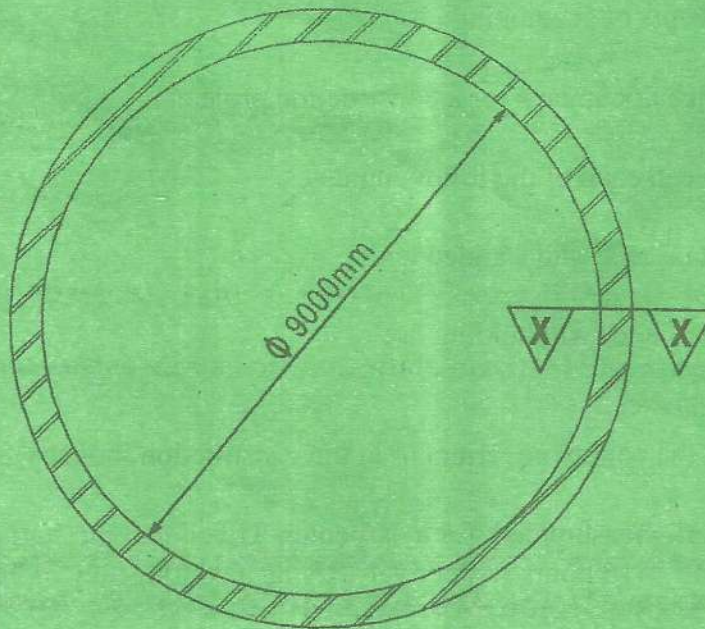
Bulking in sand 30%

Shrinkage in mortar 20%

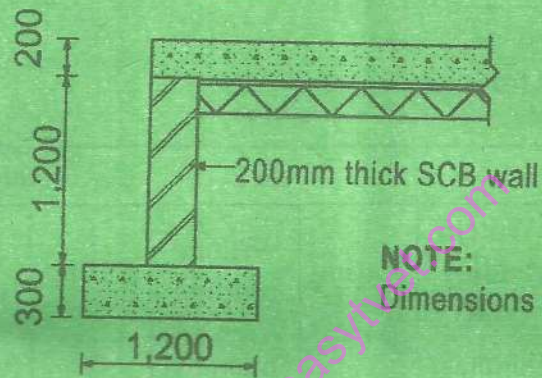
Mortar ratio 1:4

Concrete ratio 1:3:6

(12 marks)



PLAN



NOTE:
Dimensions are in millimeters

SECTION X - X

FIGURE 2

7. (a) Outline **four** concepts of accounting. (6 marks)
- (b) Explain **three** office documents for a construction project. (6 marks)
- (c) Differentiate between each of the following taxes:
- (i) 'advance tax' and 'value added tax';
- (ii) 'excise duty' and 'withholding tax'. (8 marks)
8. (a) State **five** roles of the county government in the construction industry. (5 marks)
- (b) **Table 2** shows work measurement for a carpenter. Given that the start and end of the study was 1355 and 1416 hours respectively. Using a contingency of 3%, determine:
- (i) adjusted observed time;
- (ii) standard time. (15 marks)

Table 2: Work Measurement for a carpenter

Element	Cycle 1		Cycle 2		Cycle 3		Allowances
	Rating (R)	Watch reading (WR)	Rating	Watch reading	Rating	Watch reading	
	%	(minutes)	%	(minutes)	%	(minutes)	
- Check time	-	0.00					
1. Select timber	90	2.00	100	8.80	110	16.80	30
2. Measure	85	3.50	95	12.10	105	18.20	40
3. Cut	80	5.50	90	13.90	100	20.40	50
- Break	-	7.20	-	15.00	-	22.20	-

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