2705/304
2707/304
2709/304
2710/304
CONSTRUCTION MANAGEMENT II,
ESTIMATING AND COSTING II
June/July 2021
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN BUILDING CONSTRUCTION
DIPLOMA IN CIVIL ENGINEERING
DIPLOMA IN ARCHITECTURE

MODULE III

CONSTRUCTION MANAGEMENT II, ESTIMATING AND COSTING II

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
Answer booklet;
Mathematical tables/Scientific calculator.
*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 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.

SECTION A: CONSTRUCTION MANAGEMENT II

*Answer any **THREE** questions from this section.*

1. (a) (i) Explain **five** phases of a project life cycle.

(ii) State **three** factors involved in each of the following:

(I) precontract planning;
(II) post contract planning.

(16 marks)

(b) Explain the following terms as used in construction management:

(i) work measurement;
(ii) method study.

(4 marks)

2. (a) **Table 1** shows activities and duration of a section of work.

(i) Use the information to draw a network diagram and show the critical path.

(ii) Determine the duration required to complete this section of work.

(8 marks)

Table 1

Activity		Event	Duration (week)
A		1 - 2	3
B		1 - 3	2
C		1 - 4	5
D		2 - 5	0
E		2 - 7	6
F		3 - 5	4
G		4 - 5	3
H		4 - 6	1
I		5 - 7	4
J		6 - 7	2

(b) Describe **three** documents used during material procurement. (6 marks)

(c) Explain **two** effects of inadequate material management. (4 marks)

(d) List **four** sources of law in Kenya. (2 marks)

Tort - is an infringement of the civil rights belonging to individuals considered as individual.

3. (a) Differentiate between a tort and a crime. (6 marks)

Crime - is a breach of public rights, duties which affects the whole people considered as community.

(b) Explain two defences to an action for trespass to land in the law of torts. (4 marks)

- Injunction,

(c) Define the following torts:

(i) nuisance;
(ii) defamation. - status, position, name.

(4 marks)

(d) Explain the following forms of land ownership:

(i) freehold; - Inherited
(ii) leasehold; - under lease - 9
(iii) mortgage. - ??

(6 marks)

4. (a) Outline four roles of human resource managers. (6 marks)

- supervision - Disciplines employees.
- ~~off~~ Recruitment - Assigning duties & responsibilities

(b) Explain three powers of factory inspectors. (6 marks)

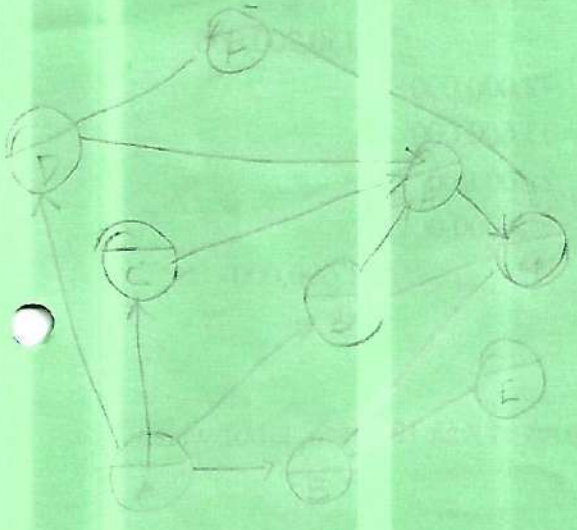
- Impose regulations to the factory

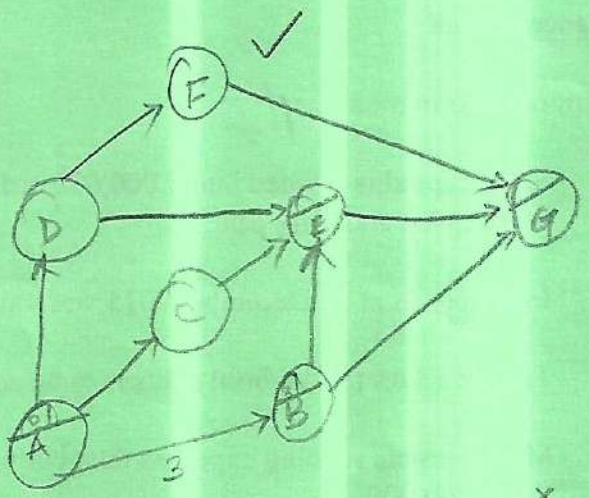
(c) Explain three functions of trade unions. (6 marks)

- Fights for the rights of trade union members.
- comes up with regulations governing employers

(d) State four methods of motivating employees. (2 marks)

- promotions - Gifts & presents





5. The following trial balance was extracted from books of accounts of Panta Limited as at 31st December 2015:

Share capital Ksh 100 ordinary shares		300,000,000
Share premium		100,000,000
10% loan notes		
Non current assets		
Freehold land	280,000,000	
Buildings	300,000,000	
Plants and equipments	80,000,000	
Accumulated depreciation (1 January 2015)		
Buildings		40,000,000
Plants and equipments		32,000,000
Motor vehicle		40,000,000
- Sales		1,053,000,000
- Trade receivable and trade payable	71,200,000	41,400,000
- Bad debt (1 January 2015)	3,800,000	
- Provision for bad and doubtful debt (1 January 2015)		3,200,000
- Salaries and wages	92,400,000	
Rent and rates	14,200,000	
10% loan note intrest	30,000,000	
Revenue reserves (1 January 2015)		150,200,000
Directors salaries	72,000,000	
Motor vehicle running expenses	33,600,000	
General expenses	2,400,000	
Inventory (1 January 2015)	149,000,000	
Balance at bank		3,600,000

Additional information:

(I) Share capital is divided into 3,000,000 ordinary shares of Ksh 100 each, all of which were issued and fully paid.

(II) Inventory as at 31 December 2015 was valued at Ksh 162,400,000 (closing stock).

(III) The provision for doubtful debts is to be adjusted to 3,600,000.

(IV) Motor vehicle running expenses due, but unpaid as at 31 December 2015 were Ksh 4,200,000.

(V) Rent and rates paid in advance as at 31 December 2015 amounted to Ksh 3,000,000.

(VI) Depreciation is charged as follows:

- Plant and equipment 10% per annum on cost.
- Motor vehicle 20% per annum on cost.
- Building to be depreciated by Ksh 800,000.

(VII) Directors have proposed dividend of Ksh 10 per share for the year ending 31 December 2015.

Prepare:

(a) income statement for the year ended 31 December 2015. (10 marks)

(b) balance sheet as at 31 December 2015. (10 marks)

SECTION B: ESTIMATING AND COSTING II

*Answer any **TWO** questions from this section.*

6. (a) Build up a unit rate for laying concrete 1:3:6, 20 mm aggregate in foundation strip per m^2 given the following. (20 marks)

Data	
Capacity of non-tilting mixer	200 ltrs
Purchase value of mixer	Kh 1,400,000
Working life of mixer	5 years
Hours worked in a year	2000 hours
Salvage value	Ksh 400,000
Interest on capital 80% of purchase price	
Maintenance, repair, insurance and taxes 75% of annual depreciation	
Lubricating oil and grease	Ksh 30/- per hour
Cement	Ksh 680/50 kg bag
Sand	Ksh 2100 per tonne
Ballast	Ksh 2500 per tonne
Density of cement	1440 kg/m3
Density of ballast	1700 kg/m3
Density of sand	1600 kg/m3
Cycle time	6 min
Efficiency	54 min
Skilled labour	Ksh 150 per hour
Unskilled labour	Ksh 75 per hour
Diesel fuel	5L per hour @90 per litre

Assume any other necessary information not given.

7. (a) A plant has a book value of Ksh 500,000 at the beginning of the first year. The plants life is 5 years. Calculate its scrap value using double the rate method of depreciation. (10 marks)

(b) Build up unit rate for disposal of general surface water.

Data

• Pump hire charge (including fuel)	Ksh 2,500 per day
• Operator	Ksh 150 per hour
• Duration of use	4 weeks
• No. of working day per week	6 days
• Standby pump at	Ksh 850 per day (all inclusive)

(10 marks)

8. Build up rate for 1 brick wall in stretcher bond, bedded and jointed in cement and sand mortar 1:4. Use the data given below: (20 marks)

• Cost of bricks	Ksh 30,000 per 1000 batch
• Cost of cement	Ksh 680 per bag
• Cost of sand	Ksh 2100 per tonne
• Skilled labour	Ksh 150 per hour
• Unskilled labour	Ksh 75 per hour
• Laying of bricks	130 brick per day

Assume any necessary information.

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