

SCAN

Name: _____

Index No: _____

1704/105

SITE MANAGEMENT AND
CONSTRUCTION PLANT

June/July 2015

Time: 3 hours

Candidate's Signature: _____

Date: _____



THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN BUILDING TECHNOLOGY
MODULE I

SITE MANAGEMENT AND CONSTRUCTION PLANT

3 hours

INSTRUCTIONS TO CANDIDATES

*Write your name and index number in the spaces provided above.**Sign and write the date of examination in the spaces provided above.**You should have a scientific calculator for this examination.**This paper consists of EIGHT questions in TWO sections; A and B.**Answer FIVE questions; choosing TWO questions from section A; TWO questions from section B; and ONE question from either section in the spaces provided in this question paper.**All questions carry equal marks.**Maximum marks for each part of a question are indicated.**Do NOT remove any pages from this booklet.**Candidates should answer the questions in English.*

For Examiner's Use Only

| Section | Question | Maximum Score | Candidate's Score |
|-------------|----------|---------------|-------------------|
| A | 1 | 20 | |
| | 2 | 20 | |
| | 3 | 20 | |
| | 4 | 20 | |
| B | 5 | 20 | |
| | 6 | 20 | |
| | 7 | 20 | |
| | 8 | 20 | |
| TOTAL SCORE | | | |

This paper consists of 20 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: SITE MANAGEMENT

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

1. (a) List:
- any **four** preliminary items on a construction site;
 - the **six** regulatory acts that controls preliminary items in building industry.
- (5 marks)

- (b) Prepare a site layout plan on the line diagram shown in Fig. 1 to include the following:

- site offices;
- sand storage area;
- ballast storage area;
- mixing plant;
- water point;
- gate;
- fence;
- gantry;
- parking area.



(8 marks)

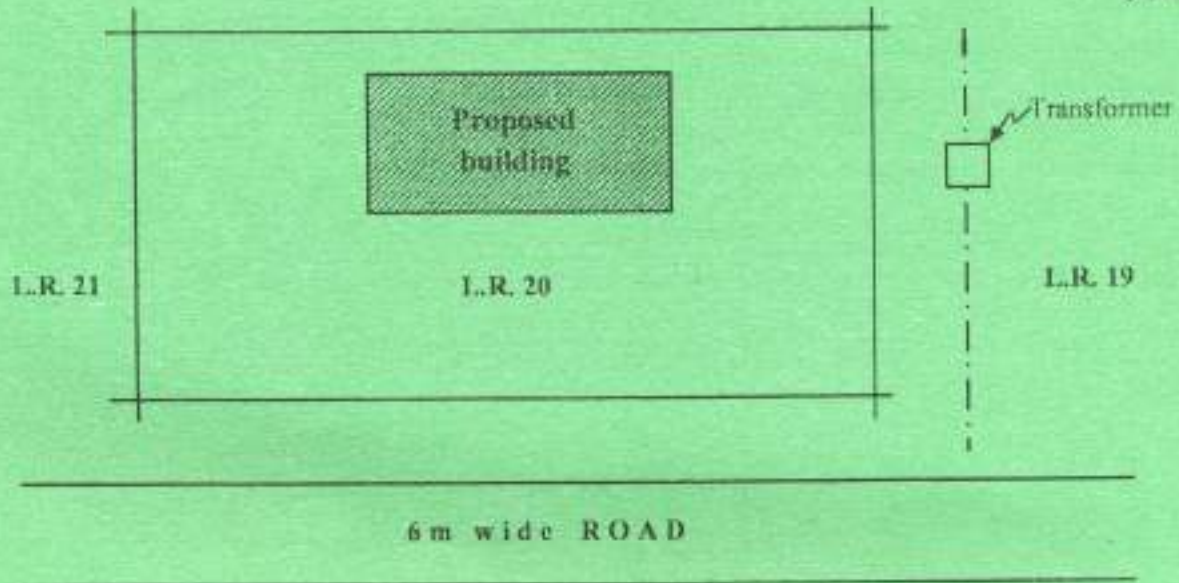


Fig. 1

- (c) Explain the term 'contract' as used in construction. (3 marks)
- (d) Explain the following remedies for breach of contract:
- recession;
 - injuction.
- (4 marks)

2. (a) State any **three** duties of the purchasing department on receiving orders from the site. (3 marks)
- (b) (i) Sketch and label a sample materials records book. (5 marks)
- (ii) Explain the importance of materials records book. (12 marks)
- (c) Outline the process of analysing materials estimation from working drawing. (12 marks)
3. (a) State the **three** aims of work measurement in the construction industry. (3 marks)
- (b) Fig. 2 is a line diagram of a simple building. Using the information below, prepare a materials schedule for:
- (i) floor, ceiling and skirting;
- (ii) doors.

(15 marks)

Information:

- PVC ceiling board;
- 100 mm ceramic skirting;
- 100 x 25 timber skirting;
- solid mahogany flush doors;
- pannelled timber door;
- 300 x 300 ceramic tiles;
- 300 x 300 dunlop PVC tiles.

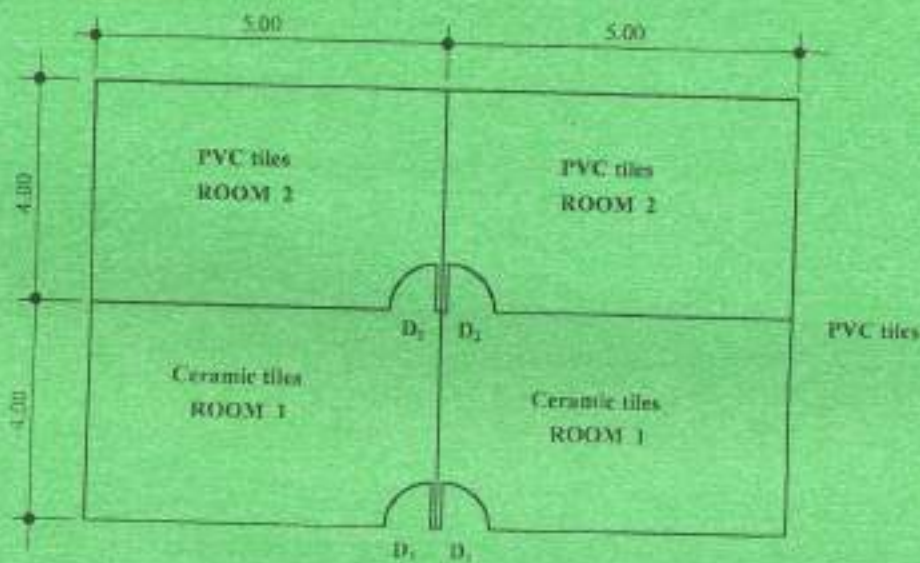


Fig. 2

- (c) State any **two** safety measures in a workshop. (2 marks)

4. (a) List **four** sources of finance in purchasing equipment. (2 marks)
- (b) Explain the following methods of maintenance:
- (i) routine maintenance;
- (ii) preventive maintenance. (6 marks)
- (c) (i) Explain the role of an inventory in an organization.
- (ii) Sketch a sample inventory. (12 marks)

SECTION B: CONSTRUCTION MATERIALS

Answer any TWO questions from this section.

5. (a) (i) State the **four** reasons for using construction plant in the building industry.
- (ii) Sketch and label a backactor. (10 marks)
- (b) (i) List any **four** classifications of construction plant.
- (ii) Explain the following compaction plants:
- immersion vibrator;
 - stamp on vibrator. (10 marks)
6. (a) Outline any **three** factors affecting the selection of excavation plant. (9 marks)
- (b) (i) Describe the following compacting plants:
- smooth wheeled roller;
 - pneumatic rollers.
- (ii) State any **two** places where the plants in b(i) are adequately used. (7 marks)
- (c) State **four** factors that contribute to effective compaction. (4 marks)



7. (a) Explain the term 'plant matching'. (5 marks)
- (b) Using the information provided below, determine the number of 0.5 m³ dumpers required to maintain a non-tilting mixer operating at a maximum efficiency if the concrete is to be placed 200 m away.

Information

- mixer output; 6m³ per hour
- travelling to tip speed; 15 km per hour
- unloading time; 0.5 min
- dumper manoeuvring at both ends; 0.7 min

(15 marks)

8. (a) List **four** components of a work cycle of a transporting plant. (2 marks)
- (b) State any **six** factors that determine the productivity of a transporting plant. (6 marks)
- (c) State **three** important factors in plant management. (3 marks)
- (d) Explain the **three** ways of acquiring construction plant. (9 marks)

