

1704/105
SITE MANAGEMENT AND
CONSTRUCTION PLANT
June/July 2017
Time: 3 hours

15 AUG 2017



THE KENYA NATIONAL EXAMINATIONS COUNCIL
CRAFT CERTIFICATE IN BUILDING TECHNOLOGY
MODULE I

SITE MANAGEMENT AND CONSTRUCTION PLANT

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Scientific calculator.

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

Answer at least TWO questions from section A, TWO questions from section B and ONE question from either section in the answer booklet provided.

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 ensure that all pages are printed as indicated and no questions are missing.

SECTION A: SITE MANAGEMENT I

Answer at least **TWO** questions from this section.

1. (a) List **six** preliminary items for site preparation works. (3 marks)
- (b) State **five** regulations relating to the preliminary items on a construction site. (5 marks)
- (c) Explain the purposes of four preliminary items during site works. (12 marks)
- ~~2.~~ (a) Explain the term site organisation. (2 marks)
- (b) State **six** safety rules and regulations to be observed on a construction site. (6 marks)
- (c) Prepare a typical site layout plan for a building site showing the following:
- (i) Proposed building.
 - (ii) Site board.
 - (iii) Security offices.
 - (iv) Administration offices.
 - (v) Mixing area.
 - (vi) Hoarding.
 - (vii) Toilets.
 - (viii) Car park.
 - (ix) Bar bending area.
 - (x) Blocks. (9 marks)
- (d) State **three** uses of sign boards on construction sites. (3 marks)
3. (a) List **two** steps involved in analysing building materials for estimation. (1 mark)
- (b) List the **four** sources of finance in construction industry. (2 marks)
- (c) Explain **four** items to be addressed in routine maintenance of a construction plant. (8 marks)
- (d) Outline **three** office practices on sites. (9 marks)
- ~~4.~~ (a) List **four** documents used in store keeping. (2 marks)
- (b) State **three** roles of each of the following personnel in the construction industry:
- (i) Estimator
 - (ii) Architect;
 - (iii) Local authorities. (9 marks)

~~(e)~~ Describe each of the following methods of tendering:

- ~~(i)~~ Selective tendering;
- ~~(ii)~~ Negotiated tendering;
- ~~(iii)~~ Open tendering.

(9 marks)

SECTION B: CONSTRUCTION PLANT

Answer at least **TWO** questions from this section.

- ~~5.~~
- ~~(a)~~ State **four** reasons for mechanizing in construction. (4 marks)
 - ~~(b)~~ List **eight** classification of mechanical plant. (4 marks)
 - ~~(c)~~ State **four** advantages and **four** disadvantages of owning cast mechanical plants. (8 marks)
 - ~~(d)~~ Differentiate between owning cost and operating cost of a plant. (4 marks)
- 6.
- (a) State the **four** factors that may influence effective compaction. (4 marks)
 - (b) State **three** situations where the following rollers are effectively used:
 - (i) pneumatic rollers;
 - (ii) sheep foot rollers. (6 marks)
 - (c) Sketch and label the following rollers:
 - (i) hand guided vibrating roller;
 - (ii) tandem vibrating roller. (10 marks)
- ~~7.~~
- ~~(a)~~ State **five** benefits of plant maintenance. (5 marks)
 - (b) State:
 - (i) **four** items to be rectified in preventive maintenance for a mechanical plant.
 - ~~(ii)~~ **three** symptoms that may trigger overhaul of a mechanical plant. (7 marks)
 - (c) ~~(i)~~ Describe work cycle of a transporting plant
~~(ii)~~ State **six** factors that affect the productivity of a transporting plant. (8 marks)

- ~~8.~~ ~~(a)~~ ~~(i)~~ Explain the term matching plant. (3 marks)
- ~~(ii)~~ Using the given data, determine the number of 0.8 m^3 clumpers required to maintain a non-tilting mixer to maximum efficiency if concrete is to be placed 400 m away from the mixer. (7 marks)

DATA

Output of mixer	-	9.6 m^3 per hour
Travelling speed	-	15 kg/hr
Unloading time	-	0.5 min
Manuvering both ends	-	1.5 min

- (b) Sketch and label the following excavating plants:

- ~~(i)~~ dragline;
~~(ii)~~ skimmer.

(10 marks)

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9.6 m³/hr
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