

1704/105
SITE MANAGEMENT AND
CONSTRUCTION PLANT
June/July 2022
Time: 3 hours



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;

Drawing instruments;

Scientific calculator.

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.

All questions carry equal marks.

Maximum marks for each part of a question are as indicated.

Candidates should answer the questions in English.

This marking scheme consists of 4 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 at least TWO questions from this section.

1. (a) Define the following terms:
 - (i) site organization;
 - (ii) site layout.

(4 marks)
- (b) State five safety rules and regulations to be observed on site.

(5 marks)
- (c) State five factors to be considered when designing a site layout.

(5 marks)
- (d) State six regulations relating to preliminary items.

(6 marks)
2. (a) Define the term store keeping.

(2 marks)
- (b) Explain three documents used for store keeping records.

(6 marks)
- (c) Describe storage of the following construction materials on site:
 - (i) bricks;
 - (ii) steel reinforcement;
 - (iii) cement;
 - (iv) timber.

(12 marks)
3. (a) List six components in estimation.

(3 marks)
- (b) List eight workshop dress code.

(4 marks)
- (c) Differentiate between actual and nominal measurements.

(4 marks)
- (d) Describe the following in relation to office practice:
 - (i) report
 - (ii) memo
 - (iii) letter

(9 marks)
4. (a) Explain the following:
 - (i) party to a contract;
 - (ii) invitation to tender;
 - (iii) breach of contract.

(6 marks)

- (b) List **eight** parties to a contract. (4 marks)
- (c) State **five** essential for any contract to be termed valid. (5 marks)
- (d) List **six** contract documents. (3 marks)
- (e) Explain the main reason as to why we use a contract document. (2 marks)

SECTION B: CONSTRUCTION PLANT

Answer at least TWO questions from this section.

- 5. (a) Outline **eight** safety precautions to be observed when using cartridge hammers. (8 marks)
- (b) Describe the following terms with reference to trucks:
 - (i) pay load;
 - (ii) struck capacity;
 - (iii) heaped capacity. (6 marks)
- (c) State **six** reasons as to why machines breakdown. (6 marks)
- 6. (a) State **five** factors affecting selection of an excavating equipment. (5 marks)
- (b) State **six** advantages of using construction plant. (6 marks)
- (c) (i) Sketch and label a face shovel.
- (ii) Describe the function of a face shovel. (9 marks)
- 7. (a) Explain the term matching of plant. (3 marks)
- (b) State **seven** considerations to make before purchasing a construction plant. (7 marks)

- (c) A scraper with a capacity of 50 m^3 hauls soil a distance of 600 m under normal conditions.

Using the data provided

- (i) Determine the cycle time;
(ii) Calculate the productivity for an 8 hour day for one scraper.

(10 marks)

Haul speed	= 8 km/hr
Machine efficiency	= 85%
Loading time	= 1.0 min
Dumping/turning time	= 0.5 min
Accelerating/ decelerating	= 0.8 min

- (i) Determine the cycle time;
(ii) Calculate the productivity for an 8 hour day for one scraper.

(10 marks)

8. (a) Outline **six** factors that may affect the productivity of dump trucks.

(6 marks)

- (b) Explain the following operation during concreting:

- (i) batching;
(ii) mixing;
(iii) vibrating.

(9 marks)

- (c) State **five** advantages of moving large volumes of concrete using a pump and pipeline.

(5 marks)

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