2707/203
CONSTRUCTION MANAGEMENT I,
WORKSHOP TECHNOLOGY II AND
WATER SUPPLY
June/July 2018
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN CIVIL ENGINEERING

MODULE II

CONSTRUCTION MANAGEMENT I, WORKSHOP TECHNOLOGY II
AND WATER SUPPLY

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
Answer booklet;
Scientific calculator.
*This paper consists of **EIGHT** questions in **THREE** sections; **A**, **B** and **C**.*
*Answer **FIVE** questions choosing **THREE** questions from section **A**, **ONE** question from section **B** and **ONE** question from section **C**.*
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 ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A: CONSTRUCTION MANAGEMENT I

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

1. (a) Define the term 'discharge of a contract'. (2 marks)

(b) Explain **four** situations under which a contract may be discharged. (6 marks)

(c) Describe **five** requirements of a valid contract. (5 marks)

(d) Describe the following methods of tendering:

(i) selective tendering;
(ii) open tendering. (7 marks)

2. (a) List **three** types of filing systems in an office. (3 marks)

(b) Explain **five** general principles of a good filling system that can be used in a construction site. (10 marks)

(c) Explain the following functions of management stating their importance in an organization:

(i) staffing;
(ii) organising. (7 marks)

3. (a) Outline the following principles of management:

(i) division of work;
(ii) subordination of individual to general interests;
(iii) equity of treatment. (9 marks)

(b) State **five** roles of a manager in a construction site. (5 marks)

(c) Describe duties and responsibilities of the construction stakeholders:

(i) Local Authority;
(ii) Structural engineer. (6 marks)

4. (a) Describe the **two** types of contracts:

(i) Lumpsum contract;
(ii) Cost-reimbursement contract. (10 marks)

(b) Sketch and label a site layout for a construction site. (10 marks)

SECTION B: WORKSHOP TECHNOLOGY II

*Answer **ONE** question from this section.*

5. (a) List **four** sources of electricity. (4 marks)

(b) State **three** reasons why steel conduits are preferred over P.V.C conduits. (3 marks)

(c) Explain **four** IEE regulation in regard to conduit installation. (4 marks)

(d) With aid of a diagram describe a domestic consumer control unit. (9 marks)

6. (a) Define the term short circuit and explain its effects. (3 marks)

(b) List **three** causes of electrical fires in a electrical installation. (3 marks)

(c) Identify **five** areas to be considered during a safety inspection on an electrical installation. (10 marks)

(d) Outline **two** reasons for earthing in an installation. (4 marks)

SECTION C: WATER SUPPLY

*Answer **ONE** question from this section.*

7. (a) Define the following:

(i) gauge pressure;
(ii) absolute pressure. (2 marks)

(b) Distinguish between the following types of flow:

(i) turbulent flow;
(ii) viscous flow. (4 marks)

(c) With the aid of a sketch describe the hydrologic cycle. (6 marks)

(d) A tapered pipe of diameter 150 mm and 50 mm respectively has water flowing through it. Calculate the discharge at the larger end and velocity head at the smaller end, given that the velocity of water at the larger end is 2.5 m/s. (8 marks)

8. (a) Explain the following processes in a water treatment plant giving importance of each:

(i) screening;
(ii) sedimentation. (8 marks)

(b) Explain the effects of prolonged storage of water in tanks at the treatment plant. (6 marks)

(c) A rectangular open channel has a width of 3.8 m and a slope 1 vertical to 600 horizontal. Calculate the mean velocity of flow and discharge when the depth of water is 1.4 m if C in Chezzy formular is 49. (6 marks)

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