2707/203
CONSTRUCTION MANAGEMENT II,
WORKSHOP TECHNOLOGY II AND
WATER SUPPLY
Oct./Nov. 2017
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN CIVIL ENGINEERING

MODULE II

CONSTRUCTION MANAGEMENT II,
WORKSHOP TECHNOLOGY II AND WATER SUPPLY

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
Answer booklet;
Mathematical tables/scientific calculator.
*The paper consists of **EIGHT** questions in **THREE** sections; **A**, **B** and **C**.*
*Answer any **FIVE** questions choosing **THREE** questions from section **A**, **ONE** question from section **B** and **ONE** question from section **C** in the answer booklet.*
All questions carry equal marks.
Maximum marks for each part of a question are as 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.

Turn over

SECTION A: CONSTRUCTION MANAGEMENT I

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

1. (a) State **two** roles of the listed stakeholders in the construction industry:

   (i) The Kenya Bureau of Standards (KEBS);
   (ii) The Architectural Association of Kenya (AAK);
   (iii) County authorities;
   (iv) Ministry of housing.

   (8 marks)

   (b) Describe the following types of contractors in the construction firm:

   (i) medium contractors;
   (ii) speculative builders;
   (iii) sub contractors.

   (12 marks)

2. (a) Differentiate between management and organisation. (4 marks)

   (b) Explain **five** functions of management. (10 marks)

   (c) With the aid of a diagram, explain the stated types of organisation relationship.

   (i) lateral relationship;
   (ii) direct relationship.

   (6 marks)

3. (a) State **two** duties of the given parties involved in the building industry.

   (i) Client.
   (ii) Architect.
   (iii) Clerk of works.

   (6 marks)

   (b) Outline the procedure of open tendering method for a proposed project. (6 marks)

   (c) State **two**:

   (i) advantages of open tendering method;
   (ii) disadvantages of open tendering.

   (4 marks)

(d) Explain where the following areas can be positioned on site layout plan:

(i) administrative office;
(ii) concrete mixer.

(4 marks)

4. (a) State **four** factors to consider for a contract to be valid. (4 marks)

(b) Describe the listed types of contract documents:

(i) drawings;
(ii) bill of quantities;
(iii) specifications.

(12 marks)

(c) As a site manager for a proposed project, where construction is about to commence, explain the procedure of writing site instructions. (4 marks)

SECTION B: WORKSHOP TECHNOLOGY II

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

5. (a) Define the following terms as used in earthing:

(i) earth;
(ii) solidly earthed.

(4 marks)

(b) Explain **two** main reasons for earthing. (4 marks)

(c) With the aid of sketches;

(i) describe the operation of a current operated earth leakage breaker.

(ii) explain how to measure the earth resistance area of an earth electrode.

(12 marks)

6. (a) State **two**:

(i) advantages of a grid system;

(ii) authorities involved in the power production.

(4 marks)

(b) With the aid of sketches, explain;

(i) how a hydro-electric power station operates.

(ii) the power distribution systems of an A.C two phase three phase wire.

(16 marks)

SECTION C: WATER SUPPLY

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

7. (a) State **two** assumptions for flow of liquid. (2 marks)

.(b) Gasoline of specific gravity 0.8 is flowing upward through a vertical pipe tapers from 30 cm to 15 cm diameter. A mercury differential manometer is connected between 30 cm and 15 cm pipe section to measure the rate of flow. The distance between the manometer tappings is 1 m and gauge reading is 50 cm of mercury.

Determine:

(i) the differential gauge reading in terms of gasoline head.

(ii) the rate of flow.

Neglect friction and other losses.

(8 marks)

(c) (i) State **two** differences between a notch and a weir. (2 marks)

(ii) A rectangular channel has a cross-section of 50 cm^2. Determine the discharge through the most economical section, if the bed is 1 in 1000.
Take Chezy's constant, C = 52.5.

(8 marks)

8. (a) (i) State **two** factors to be considered in selecting pumps. (2 marks)

(ii) With the aid of a sketch, describe the working principles of a reciprocating pump. (8 marks)

(b) (i) Distinguish between precipitation and evaporation. (4 marks)

(ii) With the aid of a sketch, explain the hydrological cycle. (6 marks)

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