SCAN

Name: _____ Index No.: _____/_____

2707/203
CONSTRUCTION MANAGEMENT I, WORKSHOP TECHNOLOGY II AND WATER SUPPLY
June/July 2015
Time: 3 hours

Candidate's Signature: _____

Date: _____

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

Write your name and index number in the spaces provided above.
Sign and write the date of the examination in the spaces provided above.
You should have drawing instruments and a Scientific calculator for this examination.
*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.
Candidates should answer the questions in English.

For Examiner's Use Only

Section	Question	Maximum Marks	Candidate's Score
A	1	20	
	2	20	
	3	20	
	4	20	
B	5	20	
	6	20	
C	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.

Turn over

SECTION A: CONSTRUCTION MANAGEMENT I

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

1. (a) State any **three** roles of each of the following bodies in the construction industry:

   (i) Architectural Association of Kenya;

   (ii) Kenya Bureau of Standards.

   (6 marks)

   (b) Distinguish between small and medium size contractors. (4 marks)

   (c) (i) State any **four** objectives of management.

   (ii) Briefly explain the following functions of management:

   (I) planning and scheduling;
   (II) organizing;
   (III) directing.

   (10 marks)

2. (a) Sketch the following organization structures and state where they are used:

   (i) shallow;
   (ii) deep;
   (iii) line and staff.

   (12 marks)

   (b) Briefly explain how oral instructions can be carried out on a construction site.

   (4 marks)

   (c) Outline any **two** filing systems in an office. (4 marks)

3. (a) Explain:

   (i) aim of installing a sign board on a construction site;

   (ii) **four** reasons for hoarding a construction site.

   (6 marks)

   (b) (i) Define the term 'site layout'.

   (ii) Outline any **four** factors which may affect site layout.

   (14 marks)

4. (a) State **five** roles of a quantity surveyor in a construction project. (5 marks)

(b) Differentiate between a contract with bills of quantities and a contract without bills of quantities. (4 marks)

(c) Explain the use of the following documents in a contract:

(i) specification;

(ii) articles of agreement. (5 marks)

(d) Outline **three** factors that make a contract to be legally binding. (6 marks)

SECTION B: WORKSHOP TECHNOLOGY II

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

5. (a) Describe **two** factors to be considered in wiring systems for an electrical installation. (4 marks)

(b) State **three** factors that determine the choice of an electrical cable. (3 marks)

(c) (i) State any **four** IEE recommended tests on a completed electrical installation.

(ii) Sketch and label an Ammeter tester. (7 marks)

(d) Explain **three** main functions of earthing. (6 marks)

6. (a) Describe any **two** methods of generating electric power. (4 marks)

(b) (i) State **four** advantages of three phase system as compared to single phase system.

(ii) Sketch and label and A.C. three phase system. (7 marks)

(c) State **five** ratings of final circuits. (5 marks)

(d) Describe the following:

(i) ring main circuit;
(ii) radial lighting circuit. (4 marks)

SECTION C: WATER SUPPLY

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

7. (a) Explain the following terms as applied in hydrological cycle:

(i) precipitation;
(ii) evaporation;
(iii) infiltration. (6 marks)

(b) (i) Derive an expression for the rate of flow through an inclined venturimeter.

(ii) A venturimeter measures the flow of a liquid of specific gravity 0.90. The entrance is 225 mm in diameter while the throat's diameter is 45 mm. There are pressure tappings at the entrance and at the throat which is 200 mm above the entrance. Determine the flow in cubic metres per second when the pressure difference is 20 kN/m^2 and coefficient of discharge of the meter is 0.95. (14 marks)

8. (a) State **four** factors that affect the choice of water intake works location. (4 marks)

(b) Describe the following water treatment processes:

(i) sedimentation;
(ii) disinfection;
(iii) filtration.

(6 marks)

(c) A trapezoidal channel of most economical section has side slopes of 2:3 (V:H). It is required to discharge 20 m^3/sec of water with a bed slope 1:2000. Design the section using Manning's n = 0.01 (10 marks)