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



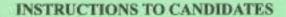
### THE KENYA NATIONAL EXAMINATIONS COUNCIL

## DIPLOMA IN CIVIL ENGINEERING

## MODULE II

CONSTRUCTION MANAGEMENT II, WORKSHOP TECHNOLOGY II AND WATER SUPPLY

3 hours



You should have the following for this examination: Answer booklet;

Mathematical tables/scientific calculator.

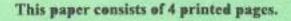
The paper consists of EIGHT questions in THREE sections; A, B and C.

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.



Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

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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.	
		(iii) sado contractorio.	(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 relationsh	ip.
		(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. State four factors to consider for a contract to be valid. (a) (4 marks) (b) Describe the listed types of contract documents: (i) drawings; bill of quantities; (ii) (iii) specifications. (12 marks) As a site manager for a proposed project, where construction is about to commence, (c) 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. 414-0000 K) (4 marks) (b) Explain two main reasons for earthing. (4 marks) With the aid of sketches; (c) (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:

- 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<sup>2</sup>. Determine the discharge through the most economical section, if the bed is 1 in 1000. Take Chezy's constant, C = 52.5.

(8 marks)



(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, explan, the hydrological cycle.

(6 marks)

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