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**BUILDING CONSTRUCTION III, DRAWING III
AND SERVICES**

Oct./Nov. 2017

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN BUILDING TECHNOLOGY
DIPLOMA IN ARCHITECTURE**

MODULE III

BUILDING CONSTRUCTION III, DRAWING III AND SERVICES

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Scientific calculator;

Drawing instruments;

Drawing paper size A3.

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

Answer TWO questions from section A, TWO questions from section B and ONE question from section C.

Each question in section A carries 25 marks, section B carries 15 marks and section C carries 20 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: BUILDING CONSTRUCTION III

Answer *TWO* questions from this section.

1. (a) Explain **four** functional requirements of curtain walling. (8 marks)
- (b) With the aid of a labelled cross-sectional sketch, describe an insitu terrazzo floor finish. (7 marks)
- (c) With the aid of a labelled sketch, outline the procedure of carrying out weathered pointing in a block wall. (6 marks)
- (d) Sketch and label a section through a timber skirting fixed in position. (4 marks)
2. (a) With the aid of a labelled pictorial sketch, outline the procedure of fixing vertical timber cladding to a wall using fillers. (10 marks)
- (b) State **five** requirements that must be fulfilled by a formwork system. (5 marks)
- (c) Describe the following methods of demolition:
 - (i) pusher arm;
 - (ii) gas expansion burster;
 - (iii) thermal lance;
 - (iv) deliberate collapse. (10 marks)
3. (a) State **five** building code requirements for a stair. (5 marks)
- (b) **Figure 1** shows part of a timber stair. Sketch and label detail A. (5 marks)

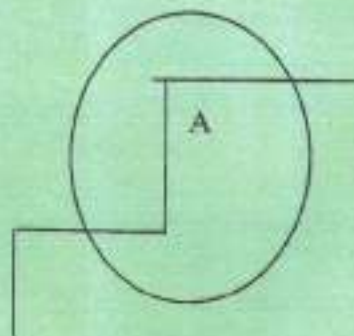


Fig. 1

- (c) Outline the procedure of hanging a wooden door on a wooden door frame. (5 marks)

- (d) (i) State **five** reasons for considering a suspended ceiling in buildings.
- (ii) Illustrate a sectional detail through a typical suspended ceiling. (10 marks)

SECTION B: DRAWING III

Answer **TWO** questions from this section.

4. **Figure 2** shows the plan of a stair. To a scale of 1:25 draw section A - A using the following information.

Floor to headroom height	2700 mm
Risers	150 mm
Tread	250 mm
Slab thickness	150 mm
Main reinforcements	Y 12
Distribution bars	Y 10
Landing	1200 mm
Balusters height	600 mm
Wall thickness	200 mm
Waist	150 mm
Handrail and balusters thickness	25 mm

(15 marks)

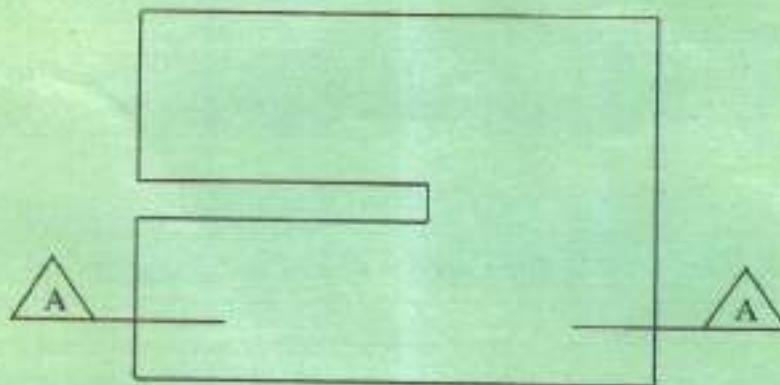


Fig. 2



5. To a scale of 1:10, draw a cross section through a rigid pavement using the following data:

Surfacing	50 mm	
Concrete slab	130 mm	
Polythene sheeting	20 mm	
Reinforcement mesh cover	50 mm	
Sub base	100 mm	(15 marks)

6. To a scale of 1:5, draw a section through a strip foundation up to and including D.P.C using the following information:

Strip footing	700 x 200 mm
Reinforcement	Y10 @ 150 mm
Hardcore	300 mm
Concrete slab	150 mm
Blinding	50 mm
Wall thickness	200 mm
Concrete cover	50 mm
Foundation depth	200 mm

Assume any other information. (15 marks)

SECTION C: BUILDING SERVICES

Answer ONE question from this section.

7. (a) Sketch and label a hot water supply system using an immersion heater in a two floor building. (7 marks)
- (b) State five characteristics of a grease trap. (5 marks)
- (c) Illustrate a two-way switch controlling a single lamp. (4 marks)
- (d) State four advantages of metallic electrical conduits. (4 marks)
8. (a) Explain three types of filters used in an air conditioning system. (6 marks)
- (b) (i) Sketch and label a cross section through a subsoil drain showing the concrete bed, hauch and surround. (9 marks)
- (ii) Explain two tests carried out on drains before backfilling. (9 marks)
- (c) State five fire regulations observed in work places. (5 marks)

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