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**BUILDING CONSTRUCTION I  
TECHNICAL DRAWING AND  
CONSTRUCTION PLANT**

June/July 2019

Time: 3 hours



**THE KENYA NATIONAL EXAMINATIONS COUNCIL**

**DIPLOMA IN BUILDING CONSTRUCTION  
DIPLOMA IN CIVIL ENGINEERING  
DIPLOMA IN ARCHITECTURE**

**MODULE I**

**BUILDING CONSTRUCTION I, TECHNICAL DRAWING AND  
CONSTRUCTION PLANT**

**3 hours**

**INSTRUCTIONS TO CANDIDATES**

*You should have the following for this examination:*

*Drawing instruments;*

*Drawing paper size A3.*

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

*Answer any FIVE questions; choosing TWO questions from section A, TWO questions from section B and ONE question from section C in the answer booklet provided.*

*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 5 printed pages.**

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



Answer TWO questions from this section.

1. (a) ✓ State **three** methods of levelling a building site. ✓ (3 marks)
- (b) Describe the following in the building process:
- (i) ✓ site clearing;
- (ii) ✓ setting out of the building;
- (iii) ✓ establishing of the datum point. (9 marks)
- (c) (i) ✓ Define the term timbering.
- (ii) ✓ Sketch and label a cross-sectional detail of timbering to dry loose soil. (8 marks)
2. (a) ✓ Sketch and label a vertical cross section through a reinforced concrete raft foundation. (8 marks)
- (b) With the aid of sketches, describe the following methods of setting out of buildings:
- (i) ✓ builders square;
- (ii) ✓ 3:4:5 method. ✓
- (c) State **two** methods of fixing door frames to masonry wall. (2 marks)
3. (a) ✓ State **four** functions requirements of a wall in building construction. (2 marks)
- (b) ✓ State **four** functions of a fireplace. (4 marks)
- (c) ✓ Sketch and label a vertical section through a wooden casement window frame with a transom. (10 marks)
- (d) ✓ Outline **four** functional requirements of a timber ground floor. (4 marks)





Answer **TWO** questions from this section.

4. A front elevation of a truncated hexagonal pyramid of 32 mm sides and a vertical height of 70 mm is shown in figure 1. Draw the following in 1<sup>st</sup> angle projection:

- front elevation;
- plan;
- end elevation in the direction shown with arrow "A";
- auxiliary plan from the angle shown.

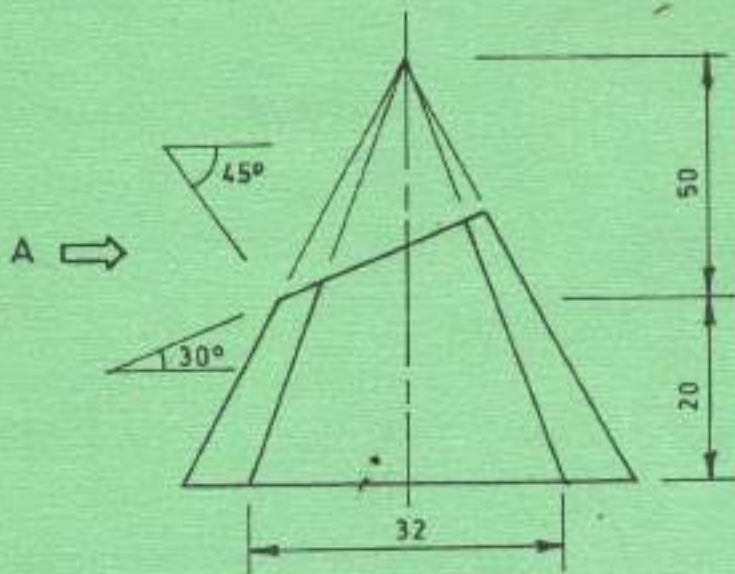


Fig. 1

(20 marks)

5. (a) A triangle has the following details  $AB = 50$  mm,  $BC = 40$  mm, angle  $BAC = 30^\circ$ . Draw the triangle and a circle passing through points  $A$  and  $C$ . (5 marks)

(b) Figure 2 shows a solid block drawn in isometric projection. Draw the following views of the block in 3<sup>rd</sup> angle projection:

- front elevation from the direction "F";
- the plan;
- end elevation from  $x$ .

(15 marks)

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Turn over



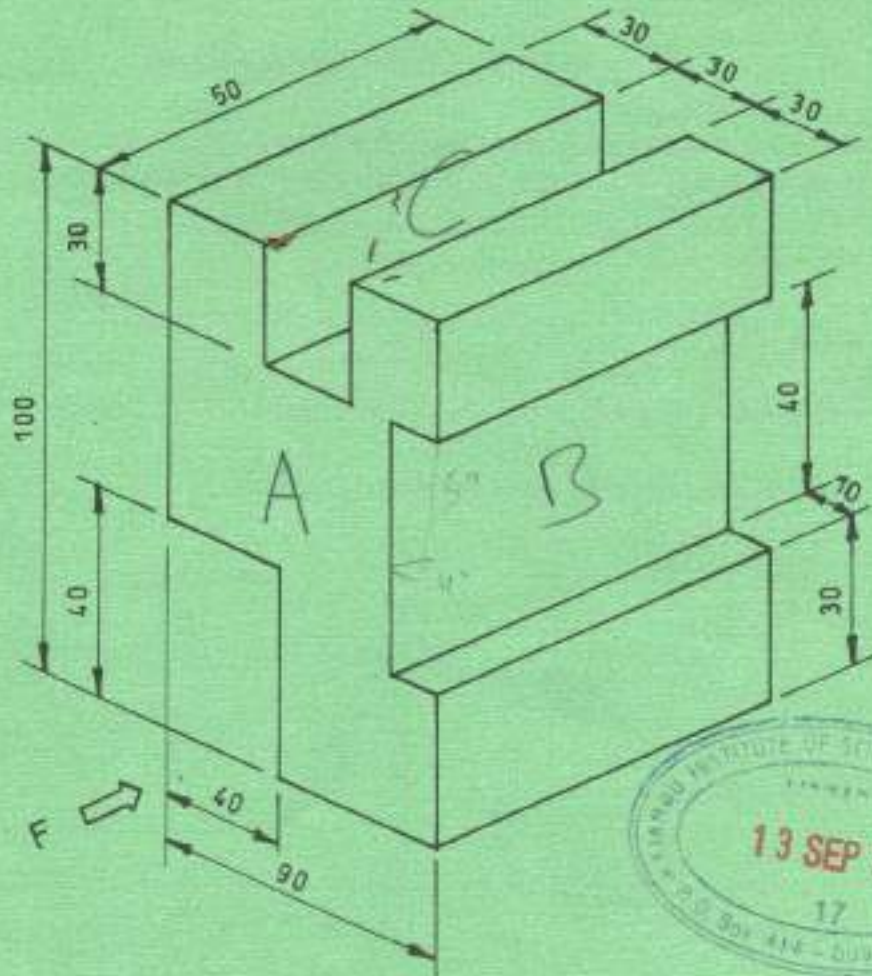


Fig. 2

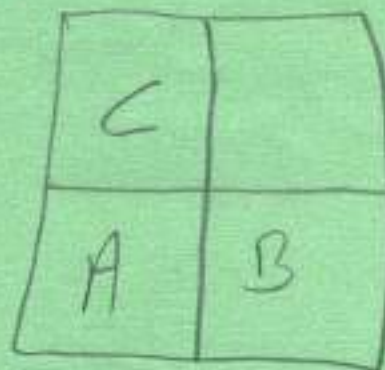


6. Figure 3 shows an elevation of intersecting cylinders. Draw the following in 3<sup>rd</sup> angle projection:

- (a) a complete plan;
- (b) end elevation viewed from the direction of arrow X;
- (c) development of half of cylinder marked B.

(20 marks)

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