2705/105 2707/105 2709/105 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

MODULEI

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.

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SECTION A: BUILDING CONSTRUCTION I (40 marks)

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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;

(if) setting out of the building;

(iii) establishing of the datum point.

(9 marks)

(c) (i) Define the term timbering.

X(ii) Sketch and label a cross-sectional detail of timbering to dry loose soil.

(8 marks)

(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

(10 marks)

(c) State two methods of fixing door frames to masonry wall.

(2 marks)

(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.

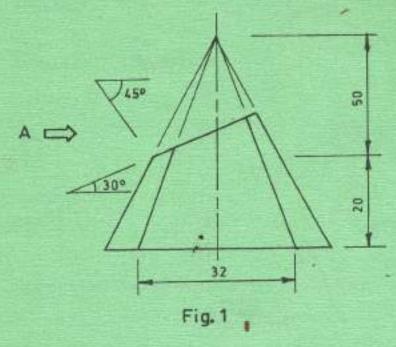
(4 marks)

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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 1st angle projection:
 - (a) front elevation;
 - (b) plan;
 - (c) end elevation in the direction shown with arrow "A";
 - (d) auxiliary plan from the angle shown.





(20 marks

- 5. (a) A triangle has the following details AB = 50 mm, BC = 40 mm, angle BAC = 30°.

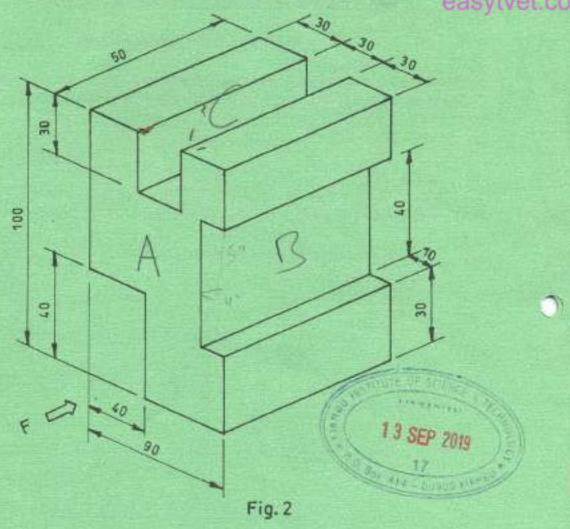
 Draw the triangle and a circle passing through points AB and C. (5 marks)
 - (b) Figure 2 shows a solid block drawn in isometric projection. Draw the following views of the block in 3rd angle projection:
 - (i) front elevation from the direction "F";
 - (ii) the plan;
 - (iii) end elevation from x.

(15 marks)

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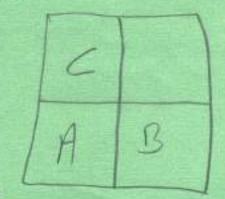


- Figure 3 shows an elevation of intersecting cylinders. Draw the following in 3th angle projection:
 - (a) a complete plan;
 - (b) end elevation viewed from the direction of arrow X;
 - (c) development of half of cylinder marked B.

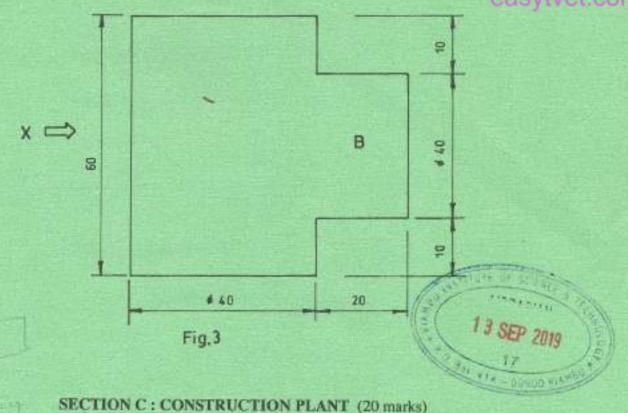
(20 marks)

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Answer ONE question from this section.

- 7. (a) Outline four advantages of using construction plants over manual work. (6 marks)
 - (b) Describe the following types of scrapers:
 - (i) crawler drawn scraper,
 - (ii) two axle scraper;
 - (iii) three axle scraper.

(9 marks)

(c) State five advantages of transporting concrete by pumping method.

(5 marks)

(a) State four types of cranes.

(2 marks)

(b) State four types of conveyors.

(4 marks)

(c) Explain four factors considered to achieve maximum out put of a scraper.

(8 marks)

(d) Outline four differences between a centrifugal and displacement water pump.

(6 marks)

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