2506/104
2507/104
ENGINEERING DRAWING
Oct./Nov. 2021
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN AERONAUTICAL ENGINEERING (AIRFRAMES AND ENGINES OPTION) (AVIONICS OPTION)

MODULE I

ENGINEERING DRAWING

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
Answer booklet;
Drawing papers size A3;
Drawing instruments;
Drawing table/ board.
*This paper consists of **FIVE** questions in **TWO** sections; **A** and **B**.*
*Answer **Question 1** in section **A** **(compulsory)** and **THREE** questions from section **B**.*
Maximum marks for each part of a question are as indicated.
All dimensions are in millimeters.
Candidates should answer the questions in English.

This paper consists of 6 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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Turnover

SECTION A: Compulsory (40 marks)

1. Draw full size in first angle projection the following views of the bracket shown in figure 1:

(a) a sectional front view along the cutting plane A-A;
(b) a sectional plan view along the cutting plane B-B;
(c) an end view.

Include **six** major dimensions. (40 marks)

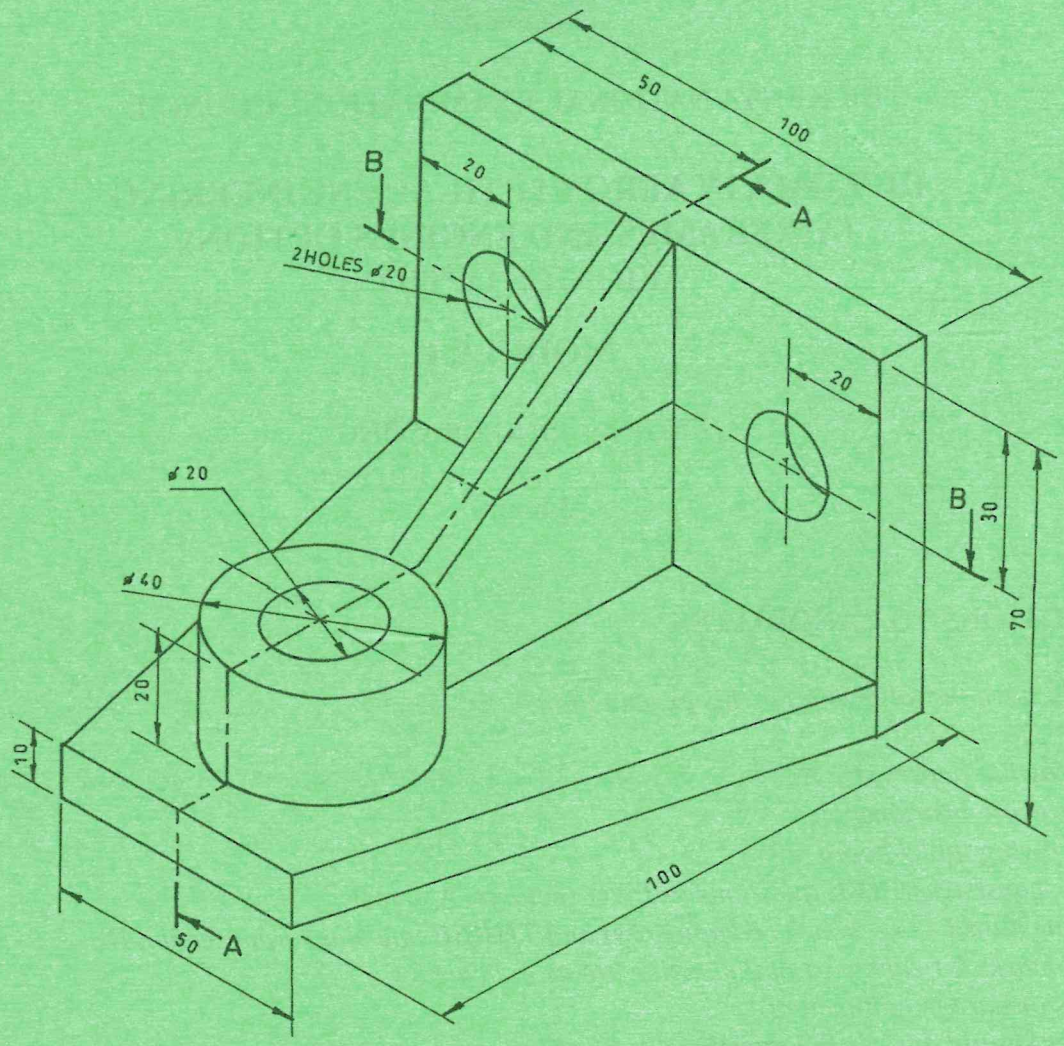


Fig.1

SECTION B: (60 marks)

Answer THREE questions from this section.

2. (a) Figure 2 shows a polygon ABCDEFGH. Copy the figure and reduce its size by the ratio of 6/9 using point A as the centre of reduction. (15 marks)

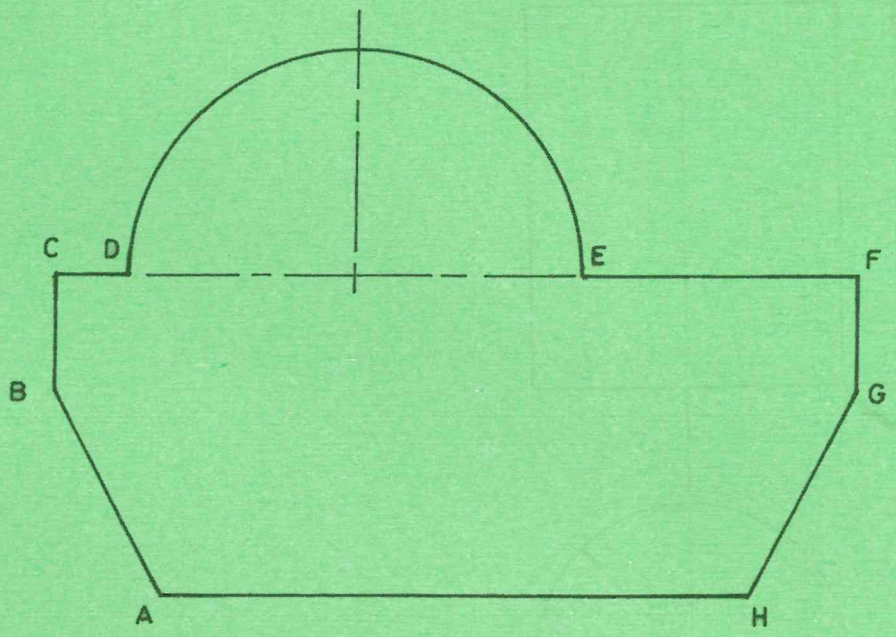


Fig. 2

(b) Construct a regular heptagon whose length of sides is 42 mm.

(5 marks)

3. (a) Figure 3 shows the front elevation and plan view of a cylinder drawn in first angle projection. Copy the given views and project an auxiliary view at 30° as indicated.

(10 marks)

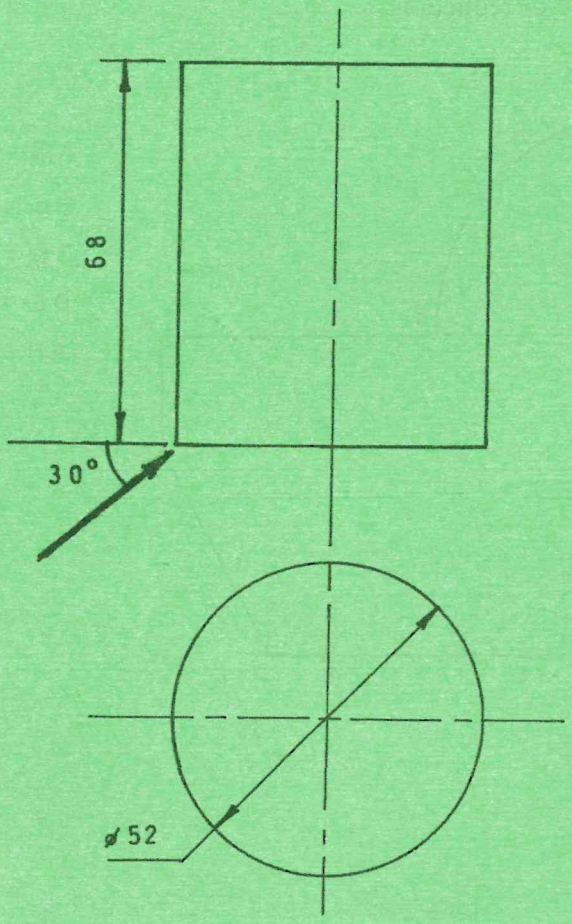


Fig. 3

(b) (i) Construct a circle to pass through points A, B and C,

where AB = 70 mm;
BC = 40 mm;
AC = 90 mm.

(ii) Draw two circles of diameters 60 mm and 40 mm respectively whose centers are 120 mm apart. Construct an external tangent to these circles.

(10 marks)

4. Figure 4 shows the end view and an incomplete front elevation of a hexagonal prism intersecting a 42 mm square prism. Copy the given views and draw the following:

(a) plan;
(b) complete front elevation, showing line of interpenetration;
(c) the surface development of the hexagonal prism.

(20 marks)

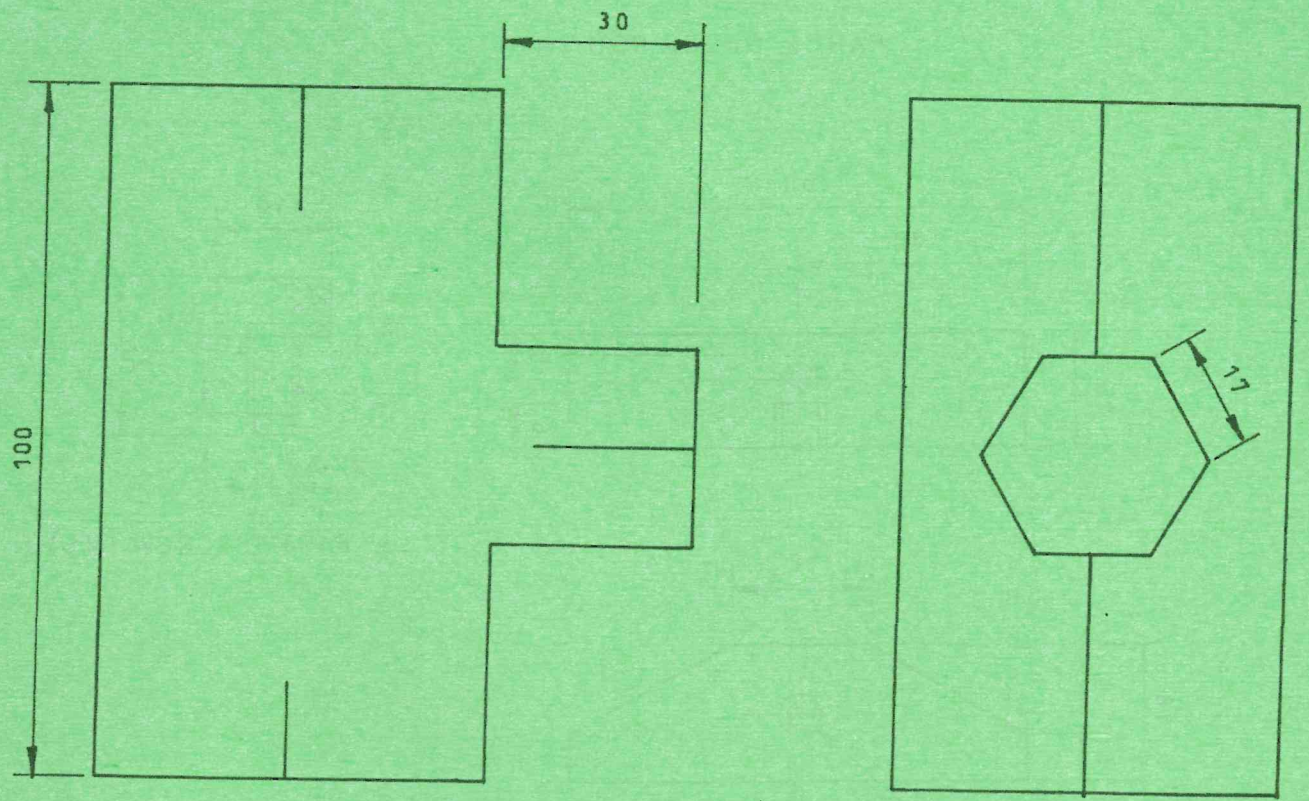
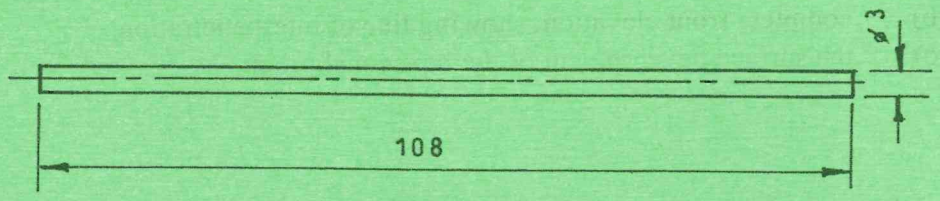
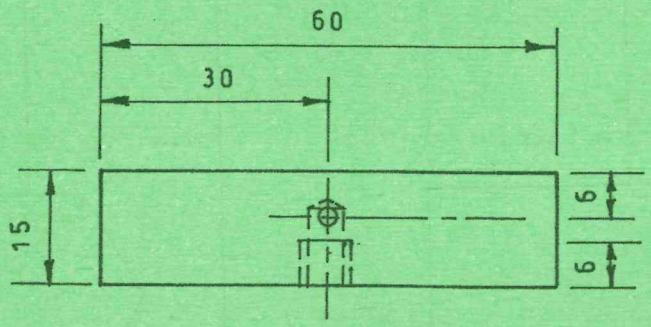


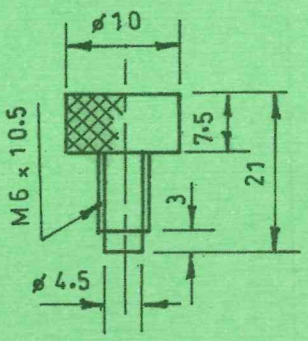
Fig. 4

5. Figure 5 shows details of parts of a depth gauge. Assemble the parts, draw two elevations and a plan view in third angle projection. The Ø3 mm rod should project 12 mm below the base. Include a parts list. (20 marks)

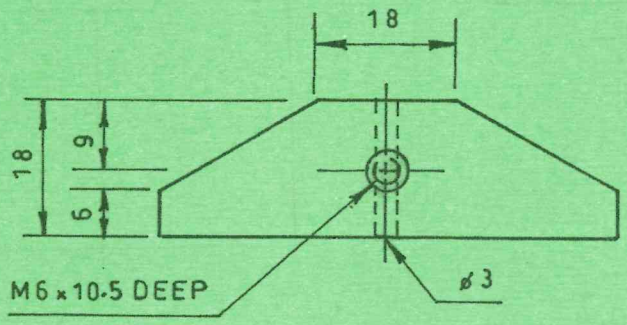


PART 2: GAUGE ROD (MS)





PART 3: SCREW (MS)



PART 1: BASE (CI)

Fig. 5

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