2506/104
2507/104
ENGINEERING DRAWING
June/July 2020
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;
        Non-programmable scientific calculator;
        Drawing papers size A$_2$;
        Drawing instruments;
        Drawing table/board.
This paper consists of FIVE questions in TWO sections; A and B.
Answer question ONE in section A (compulsory) and THREE questions from section B.
Maximum marks for each part of a question are as indicated.
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.

Turn over

SECTION A (Compulsory) (40 marks)

1.   Figure 1 shows details of part of an actuation valve. Assemble the parts and draw in first angle projection the following views:

   (a)   a sectional front elevation along the cutting line A-A;

   (b)   plan view.

   Prepare a pats list. Assume any dimensions not given.
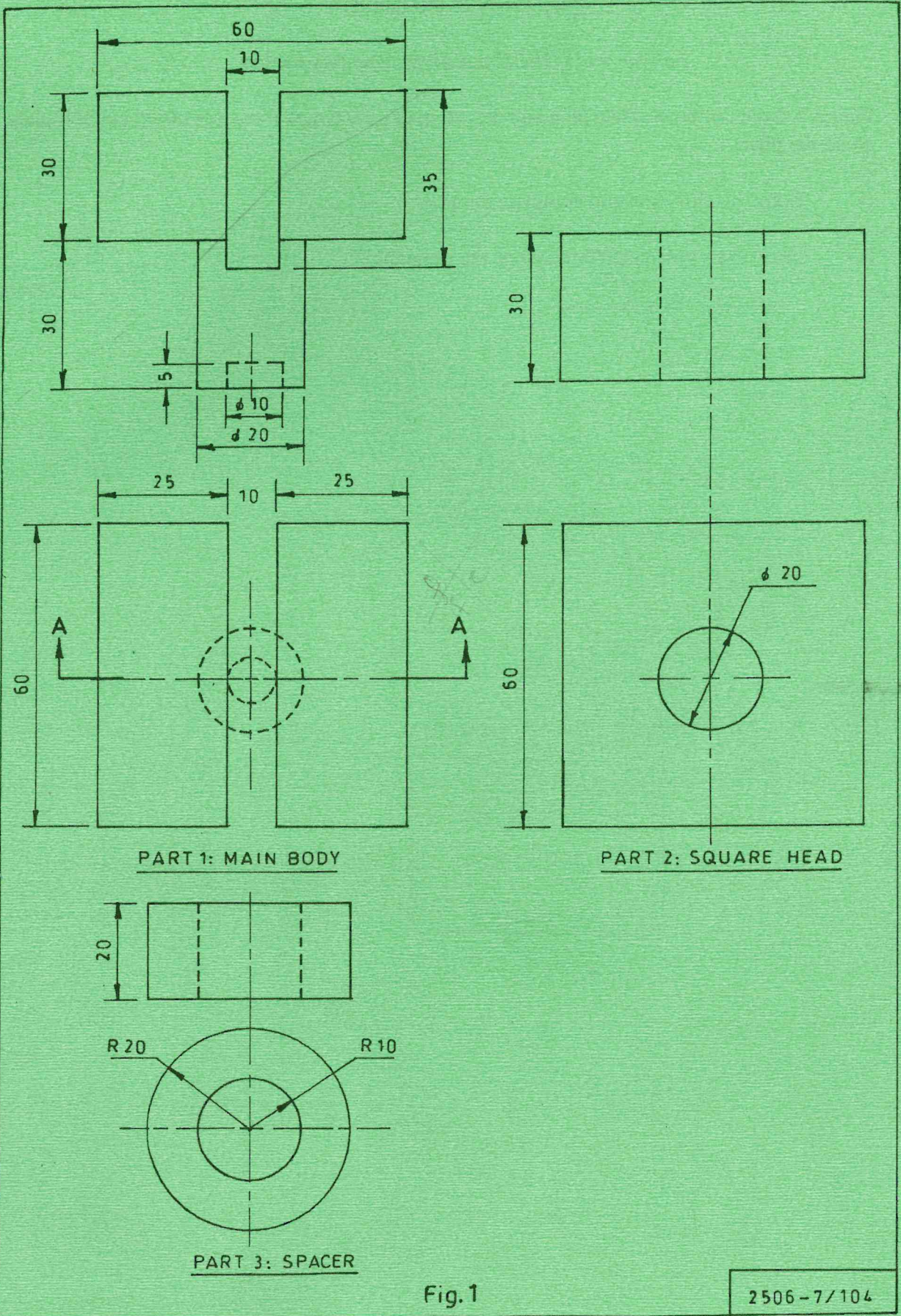
                                                                                                            (40 marks)

PART 1: MAIN BODY

PART 2: SQUARE HEAD

PART 3: SPACER

Fig. 1

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SECTION B (60 marks)

*Answer any **THREE** questions from this section.*

2. Figure 2 shows an incomplete plan and elevation of a rectangular base pyramid cut obliquely along the plane L-L.

   (a) Copy the elevation and complete the plan.

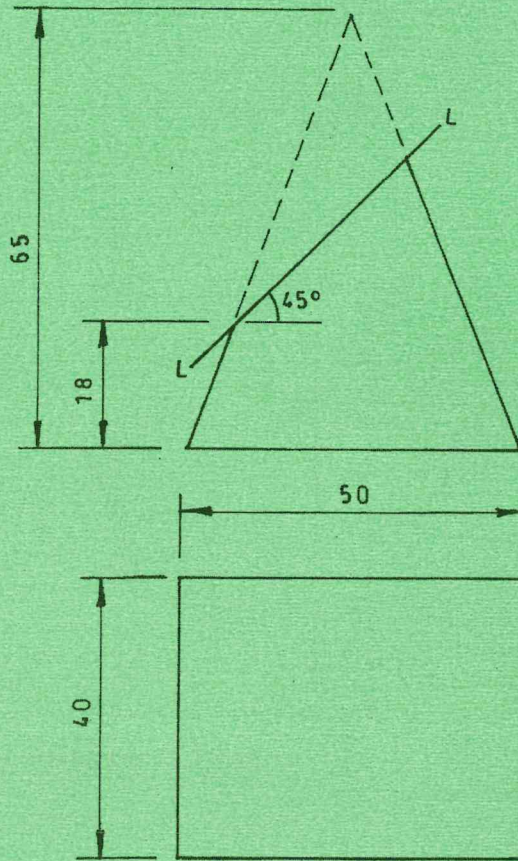   (b) Draw the surface development of the pyramid.

   (20 marks)

Fig. 2

3.   Figure 3 shows an isometric block. Using third angle projection, draw the following:

(a)   front elevation viewed from the direction of arrow F;

(b)   end elevation viewed from the direction of arrow E;

(c)   plan view.

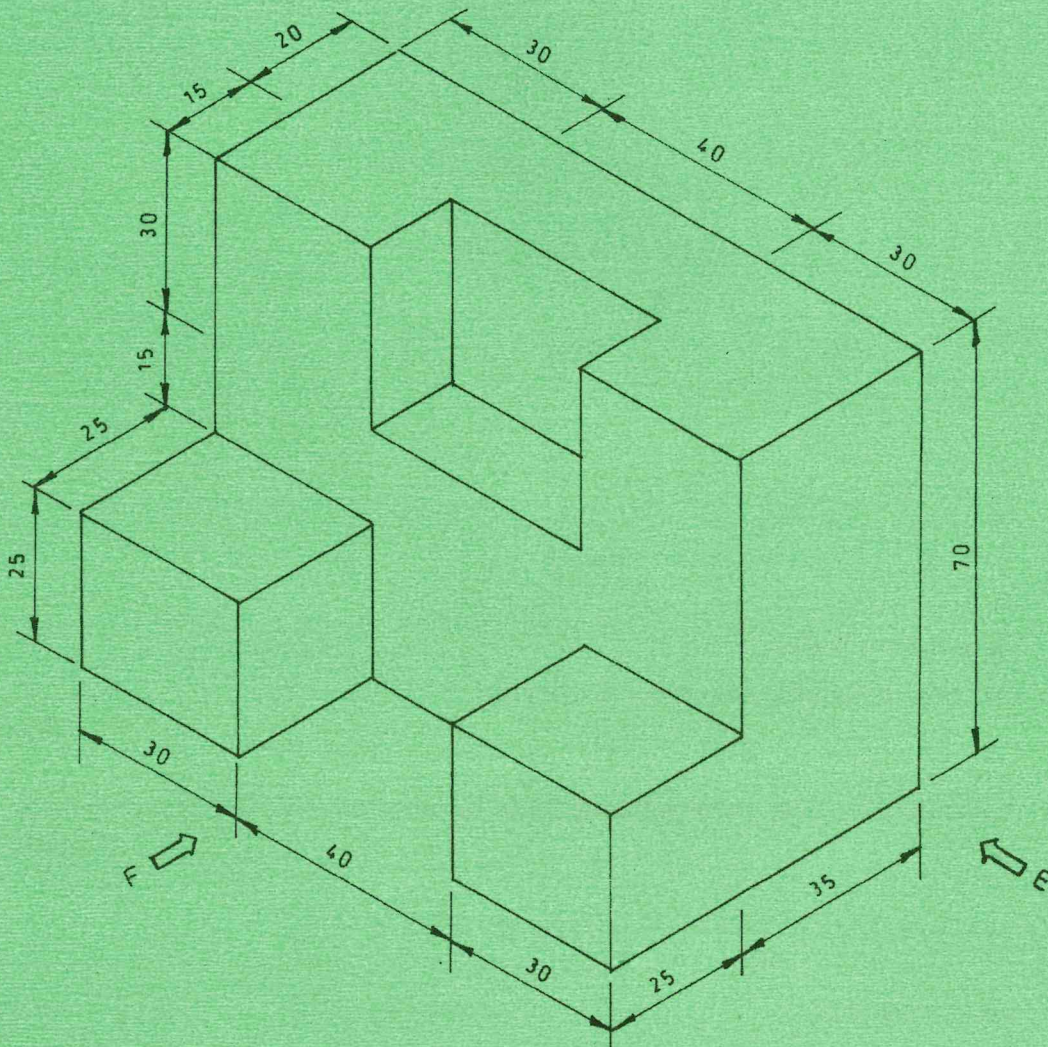Label any **six** dimensions on the views.   (20 marks)

Fig. 3

4. Figure 4 shows a four bar link mechanism with O_1 and O_2 as fixed points. The driving crank is O_1A. The distance between O_1 to $O_2 = 100$ mm. Draw the loci of points P and Q for one complete revolution of the driving crank given that point P is the midpoint of AB and

AB = 100 mm
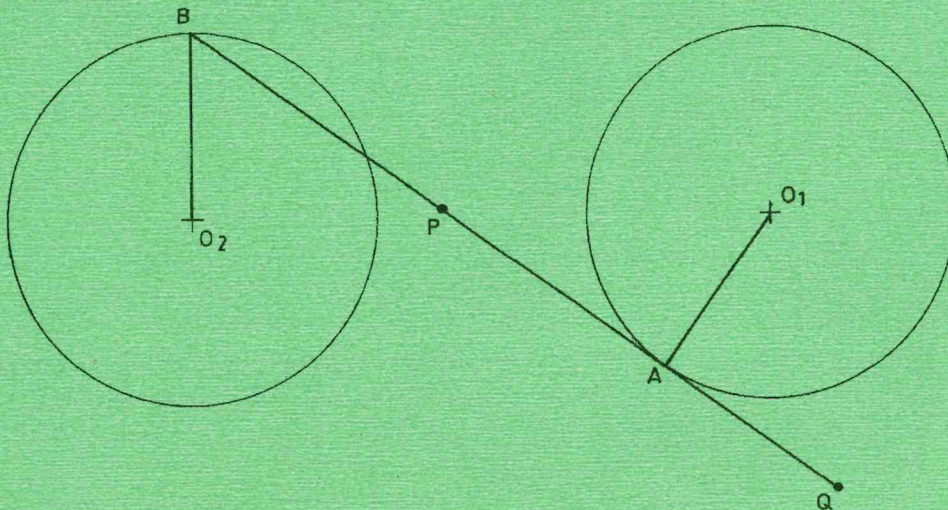$O_2B = O_1A = 30$ mm
AQ = 30 mm

(20 marks)

Fig. 4

5. (a) State:

   (i) **three** uses of scales;
   (ii) **two** ways of handling an eraser in drawing.

   (5 marks)

   (b) Using single stroke vertical gothic lettering, print the numerals 1 - 12 without the help of instruments.

   (6 marks)

   (c) Make pictorial sketches of each of the following workshop tools:

   (i) wood work chisel;
   (ii) double ended spanner;
   (iii) wood work mallet.

   (9 marks)

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