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 paper 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 7 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 *(COMPULSORY)* (40 marks)

1.   Figure 1 shows the details of a belt pulley unit drawn in third-angle projection.

Assemble the parts with the shaft in position holding the pulley and the washer at face P, collar and pin at face T.

Draw, full size, in first angle projection:

(a)   sectional front elevation along cutting plane P - P;

(b)   sectional plan view along cutting plane K - K.

Include a parts list.

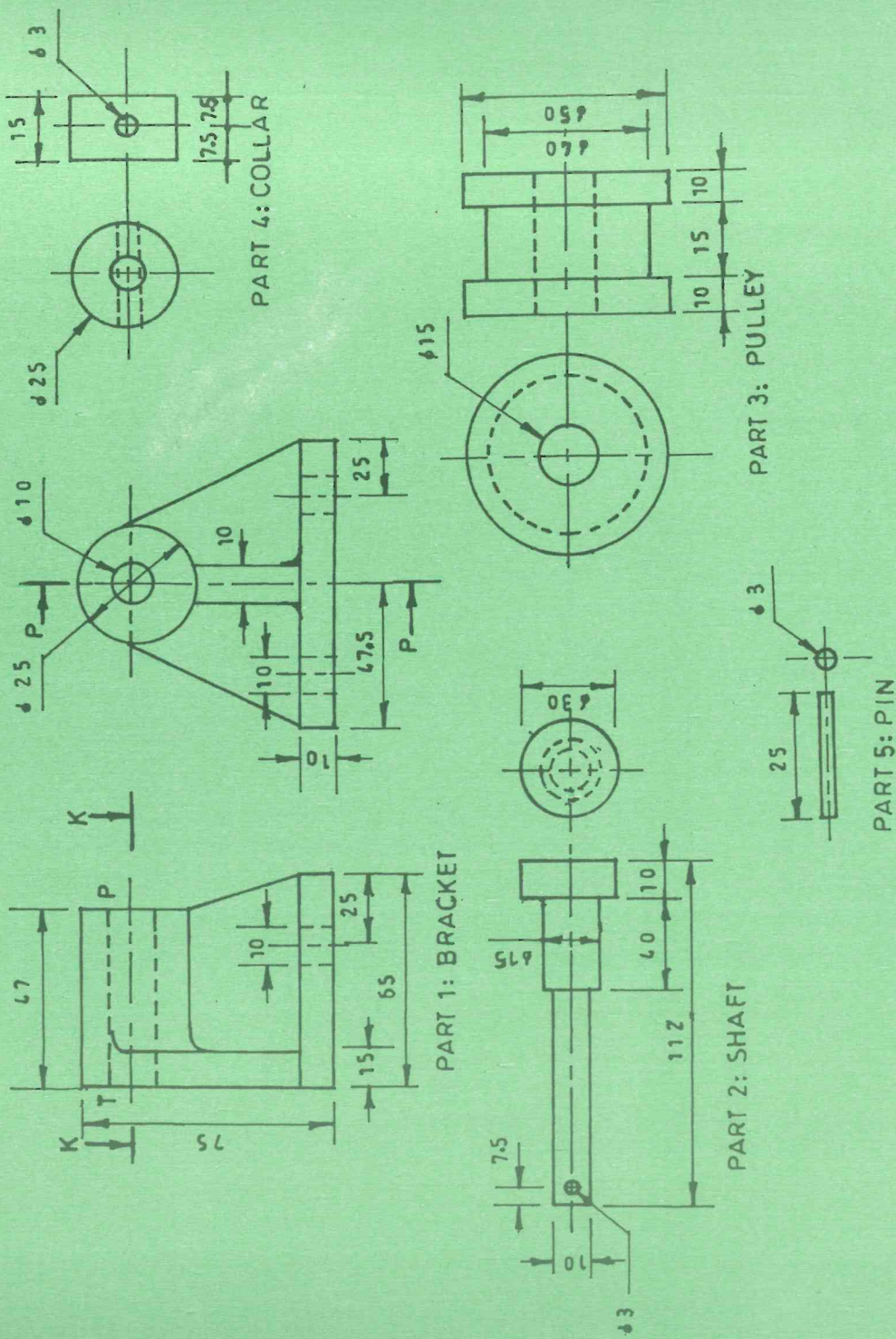Insert **six** dimensions.   (40 marks)

Fig.1

PART 4: COLLAR

PART 3: PULLEY

PART 1: BRACKET

PART 2: SHAFT

PART 5: PIN

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

2.   Figure 2 shows incomplete front elevation and plan of a cylinder penetrated by a regular square
        duct, in first angle projection.

        Copy the given views and:

        (a)   complete the plan;

        (b)   draw the curve of intersection between the cylinder and square prism;

        (c)   draw the surface development of the duct with the seam at S - S.

                                                                                            (20 marks)
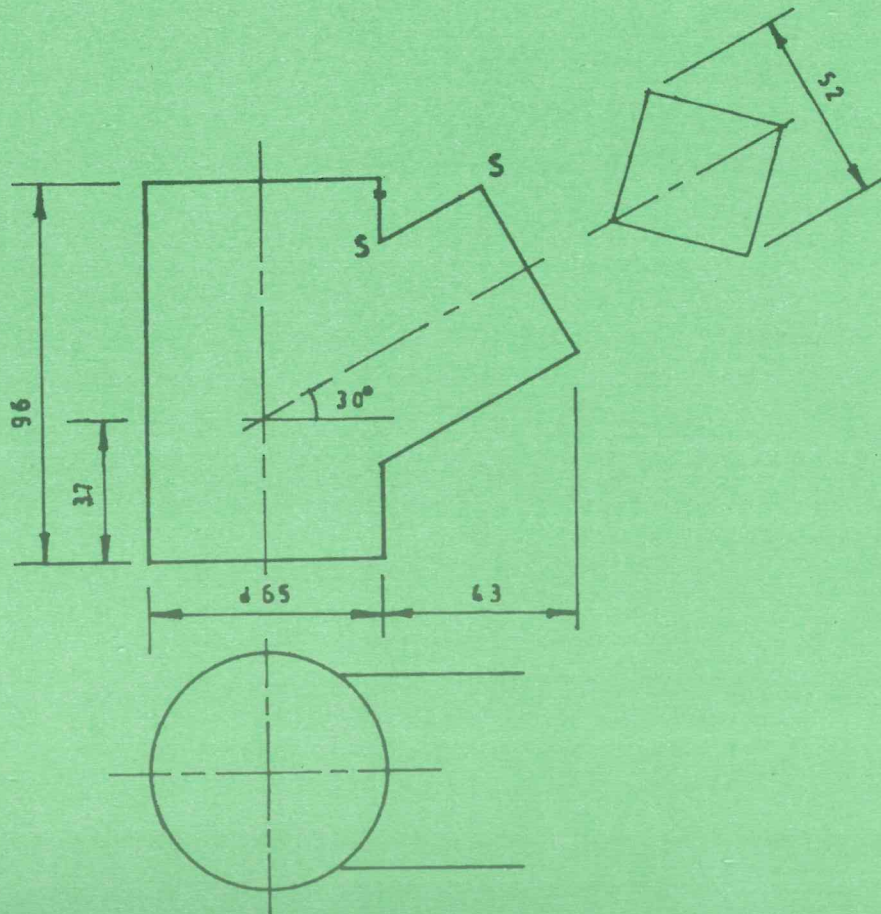
Fig. 2

3. Figure 3 shows the design of a clock in the shape of an ellipse with major and minor axes 180 mm and 100 mm respectively.
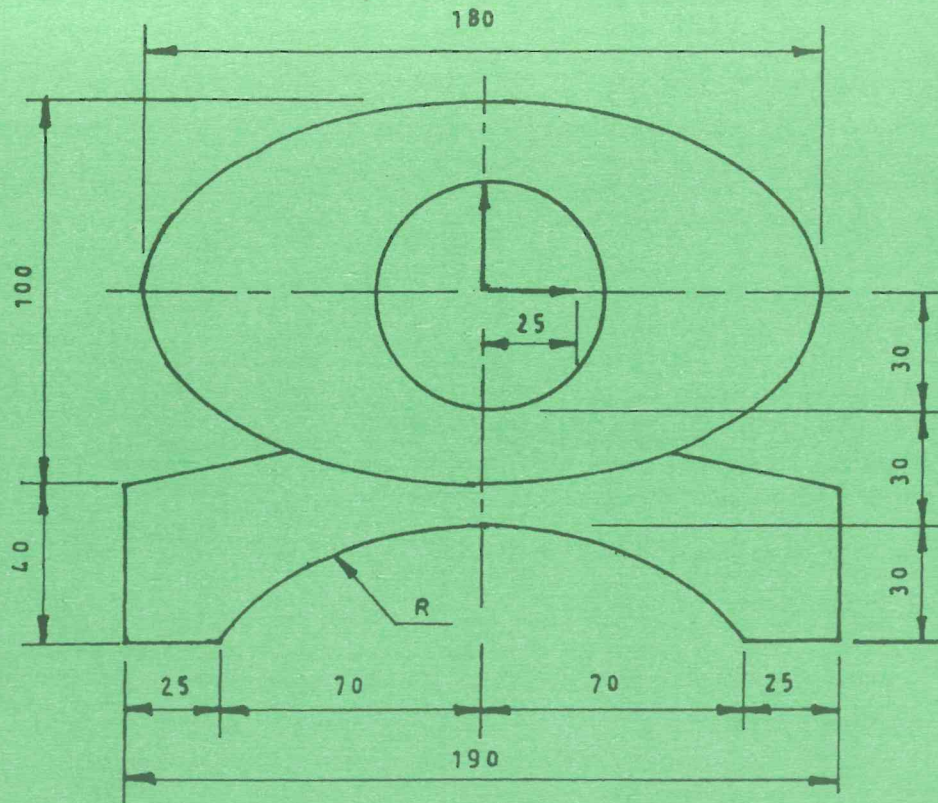Draw the given design showing clearly all the construction lines.

(20 marks)

Fig. 3

4. Figure 4 shows a third angle orthographic projection of a Vee-block. Draw isometric view of the block making X the lowest point. (20 marks)
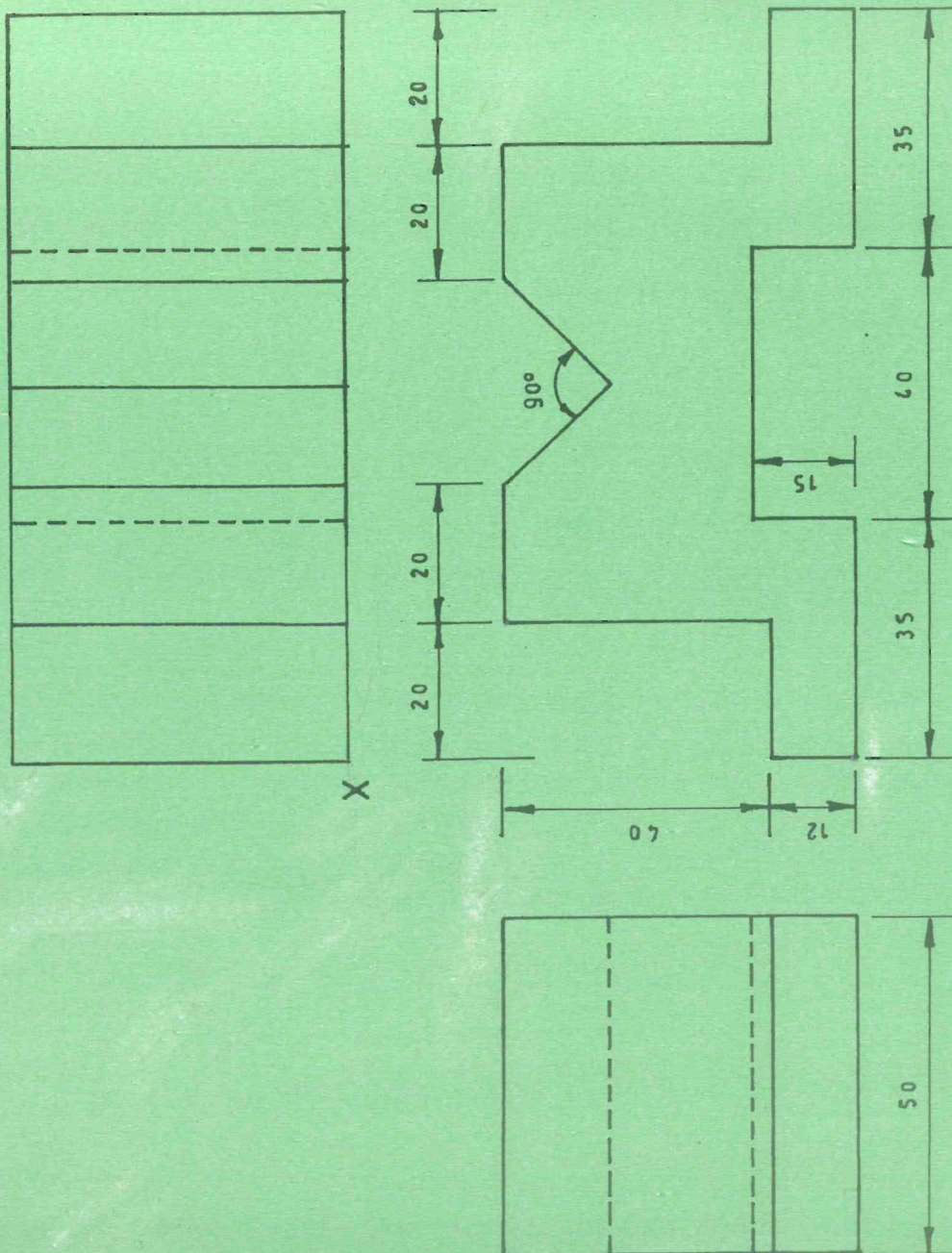

Fig. 4

5. In the link mechanism shown in figure 5, OA revolves anti-clockwise about O, while AB slides through the pivoted block C.
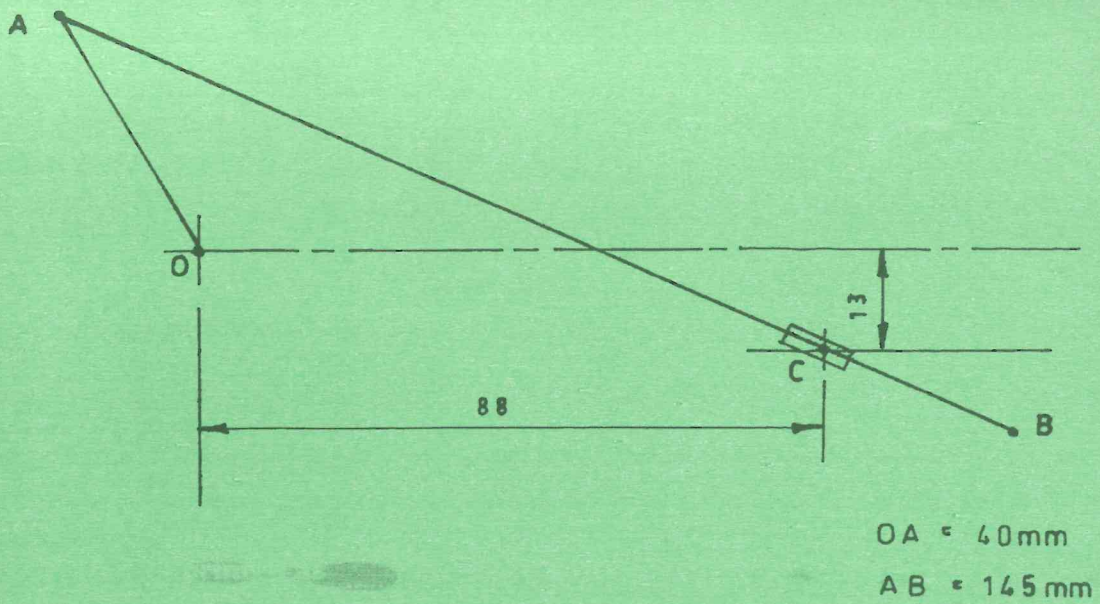   Draw the locus of B for one revolution of OA. (20 marks)

OA = 40mm
AB = 145mm

Fig. 5

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