

2506/104

2507/104

ENGINEERING DRAWING

June/July 2019

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:

Drawing papers size A2;

Drawing instruments;

A non-programmable scientific calculator;

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 in the drawing papers provided.

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 8 printed pages.

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

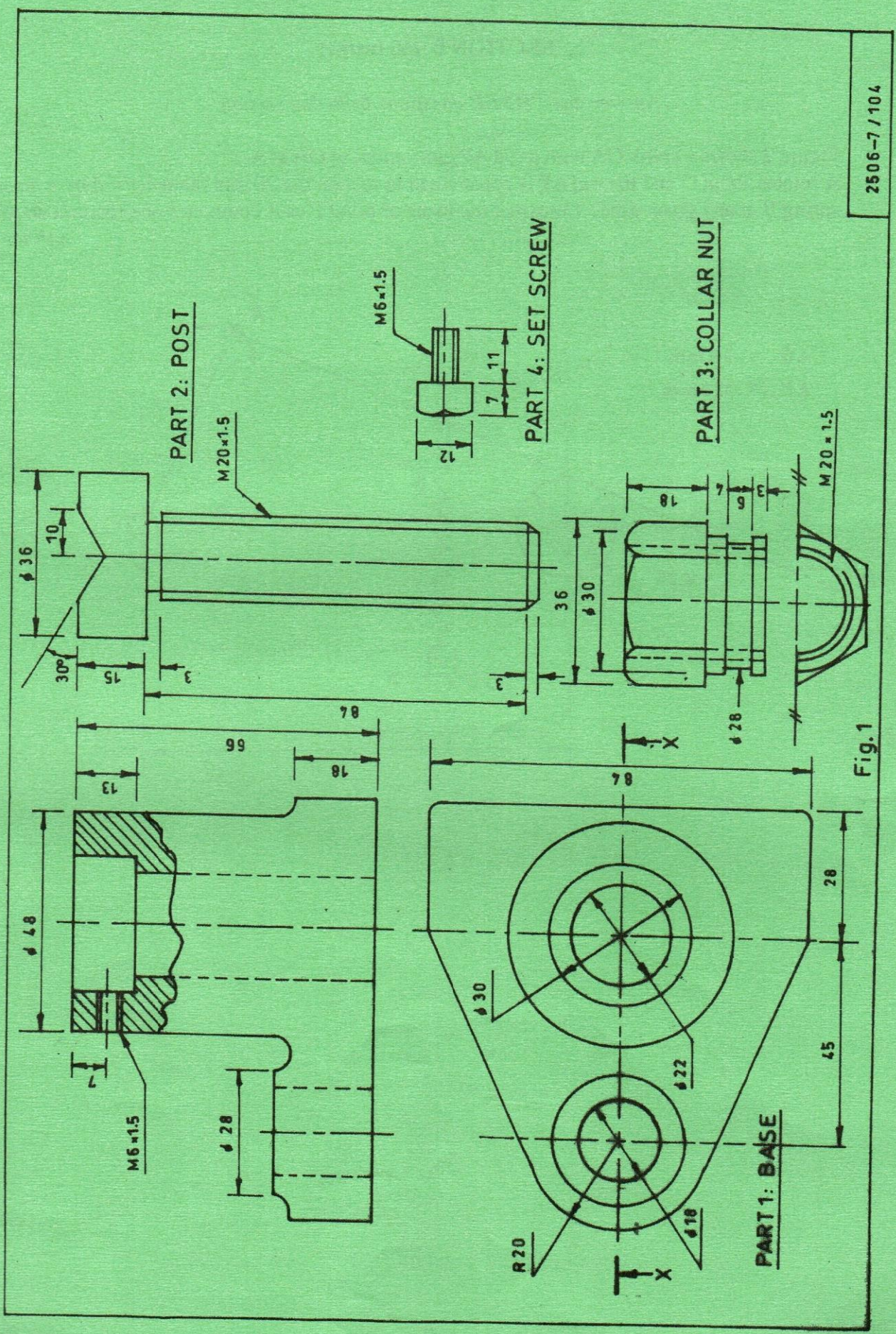
SECTION A (40 marks)

Compulsory

1. Figure 1 shows details of a tool rest.
Assemble all the parts and draw, full size, the following views in third angle projection:
- (a) a sectional front elevation along the cutting plane x - x;
 - (b) the end elevation in the direction of arrow A;
 - (c) the plan.

Include a parts list and six major dimensions and DO NOT show hidden details.
All fillet radii 3 mm.

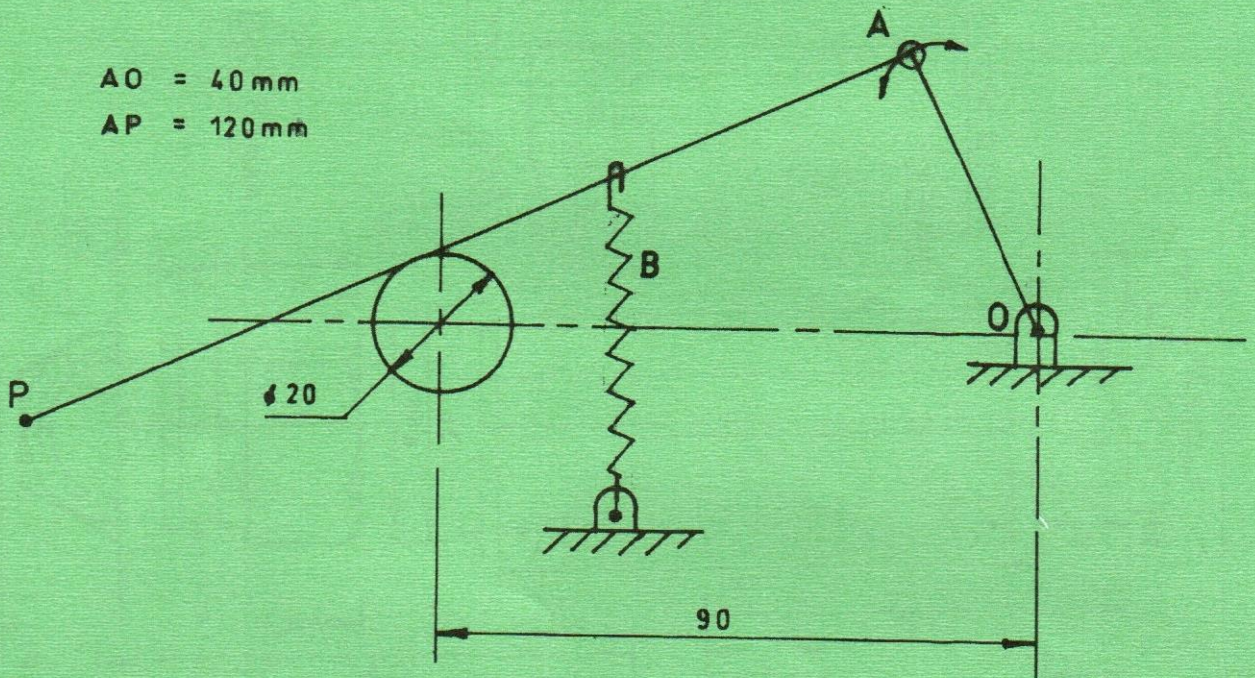
(40 marks)



SECTION B (60 marks)

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

2. Figure 2 shows a crank OA with a rod AP pin-jointed to OA at A. A rotates about O and the rod AP is constrained to rest on the 20 mm diameter rod by a tension spring B at any given time. Construct the locus of point P as A completes one rotation about O. (15 marks)



- (b) Figure 3 shows a stepped shaft. Copy the figure proportionally and show chain dimensioning on it. (3 marks)

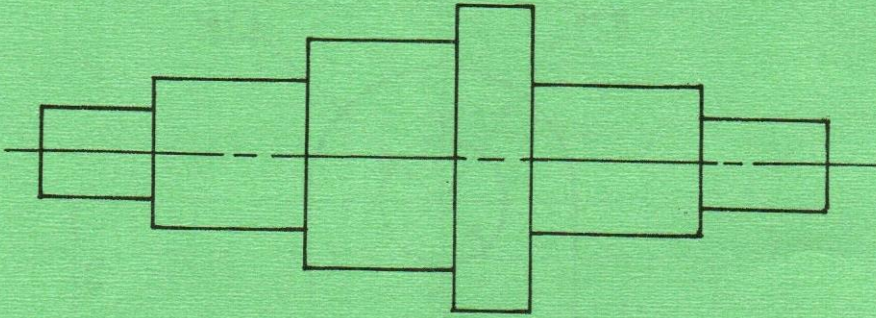


Fig. 3

- (c) Illustrate **four** ways of dimensioning circles based on sizes. (2 marks)
3. (a) Show the following types of sections:
- (i) half;
 - (ii) revolved;
 - (iii) removed;
 - (iv) section through a tapped hole.
- (15 marks)
- (b) Construct a heptagon within a circle of ϕ 82 mm. (5 marks)

4. (a) The plan and elevation of a bearing block are as shown in figure 4(a). Draw an oblique view of the block. Indicate any six dimensions. (10 marks)

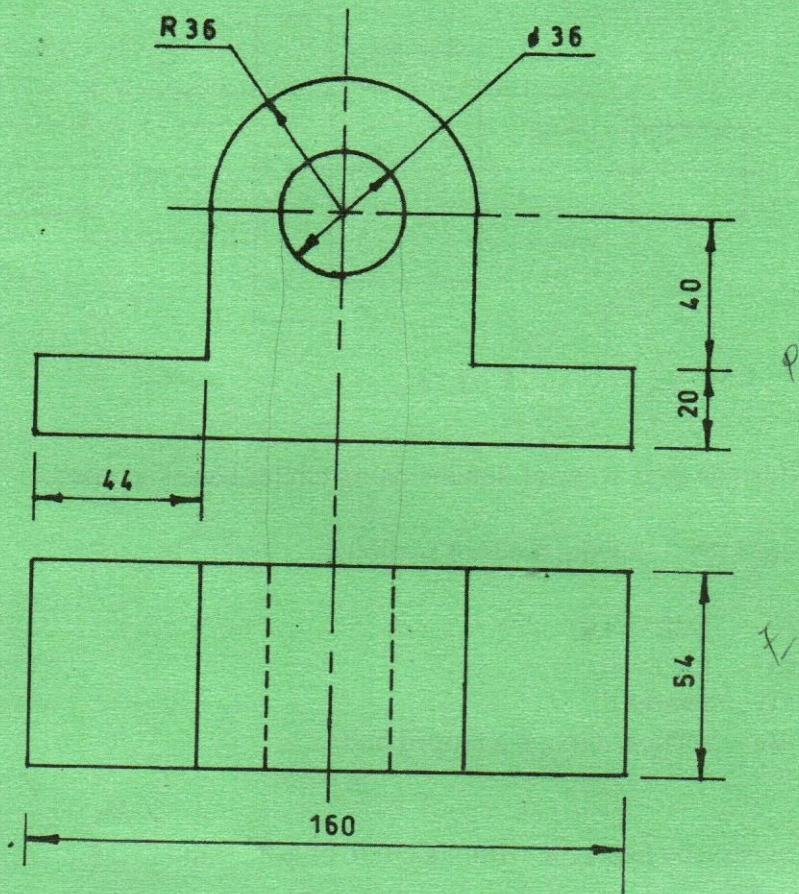
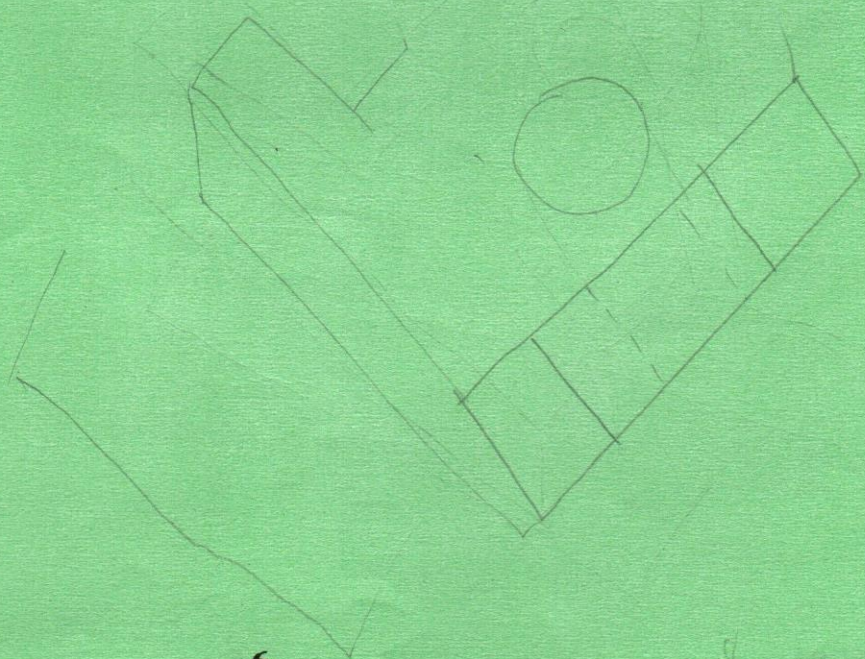


Fig. 4 (a)



12
30
12

(b) Figure 4(b) shows a plan and elevation of a block drawn in 3rd angle projection. Draw its isometric view taking corner N as the lowest point. (10 marks)

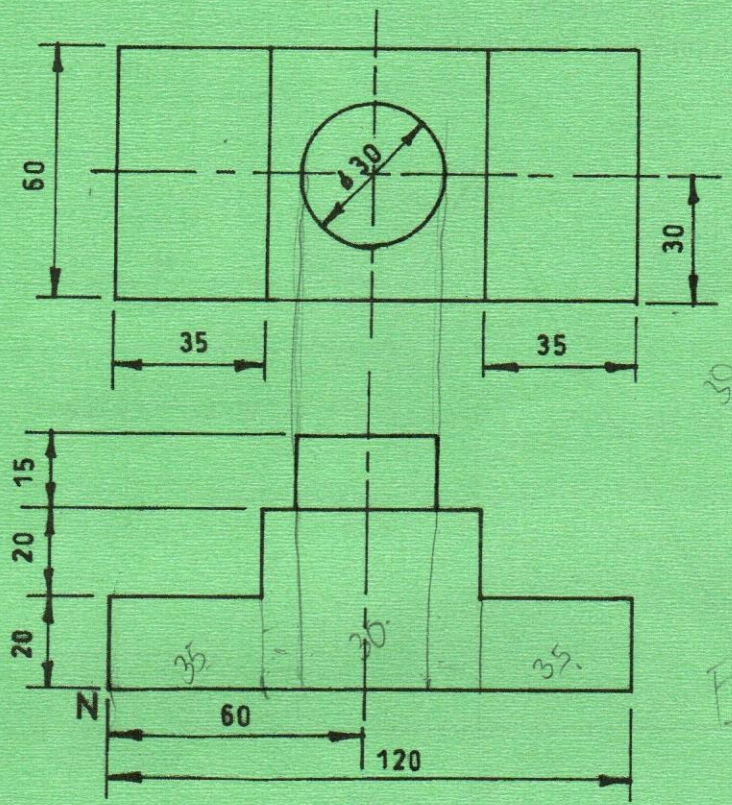
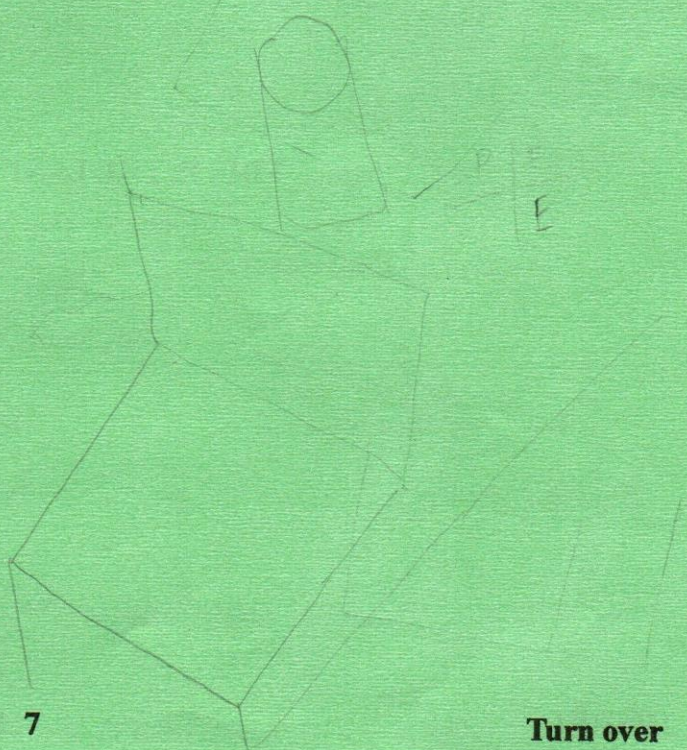


Fig. 4 (b)



5. Figure 5 shows an elevation of a cylinder intersecting a right cone at the centre. Copy the given elevation and draw the following:

- (i) the curve of intersection;
- (ii) the development of the cylinder.

(20 marks)

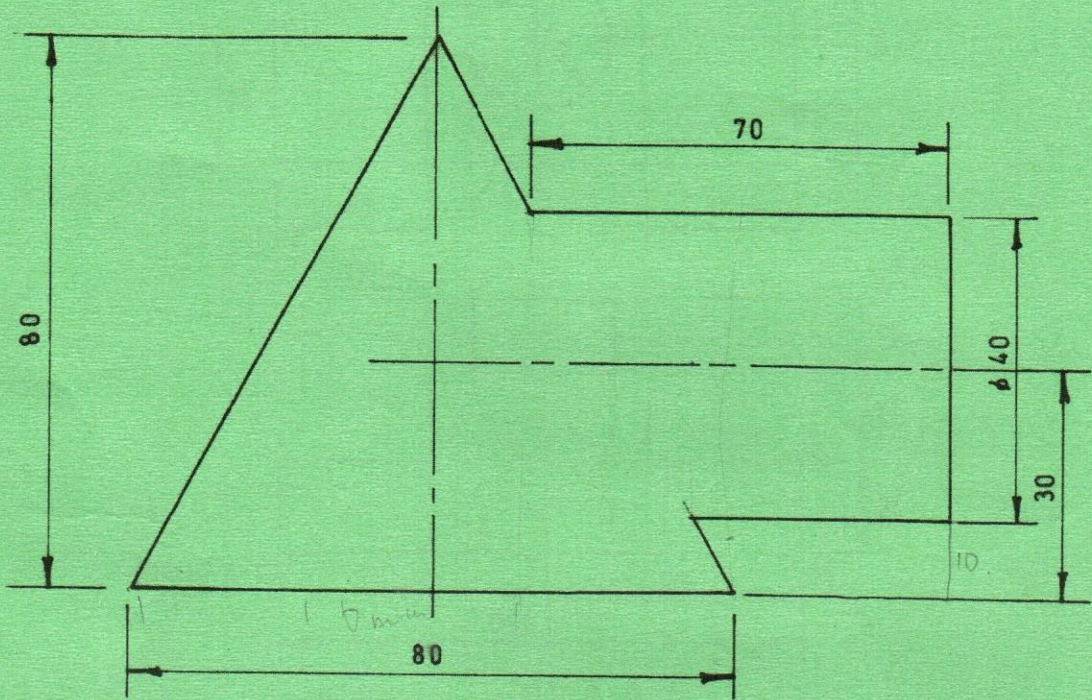


Fig. 5

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