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TECHNICAL DRAWING II
June/July 2020
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN MECHANICAL ENGINEERING
(PLANT OPTION)
(PRODUCTION OPTION)
CRAFT CERTIFICATE IN AUTOMOTIVE ENGINEERING
CRAFT CERTIFICATE IN WELDING AND FABRICATION
CRAFT CERTIFICATE IN CONSTRUCTION PLANT ENGINEERING

MODULE II

TECHNICAL DRAWING II

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
  Drawing instruments;
  Drawing paper size A2;
  Non-programmable scientific calculator.
This paper consists of SIX questions in TWO sections; A and B.
*Answer question ONE in section A (**compulsory**) and other FOUR questions from section B in the answer booklet provided.*
All dimensions are in millimeters.
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

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Answer question ONE (compulsory) in this section.

1.   **Figure** 1 shows parts of a shaft support bracket drawn in third angle projection. Assemble the parts and draw, full size in third angle projection the following views:

    (a)   a sectional elevation along cutting plane Y - Y;

    (b)   end elevation in the direction of arrow A;

    (c)   the plan.

Show any **six** major dimensions and draw a parts list.

                                                          (40 marks)

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PART No.2 SHAFT

PART No.3 SET SCREW

PART No.1 CASTING

All fillet radii 3mm

Fig. 1

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SECTION B (60 marks)

Answer any FOUR questions from this section.

2. **Figure 2** shows the intersection between a right cone and a cylinder. Copy the given views and:

   (a) draw the curve of the intersection;
   (b) complete the plan;
   (c) draw the development of the cone.

   (15 marks)

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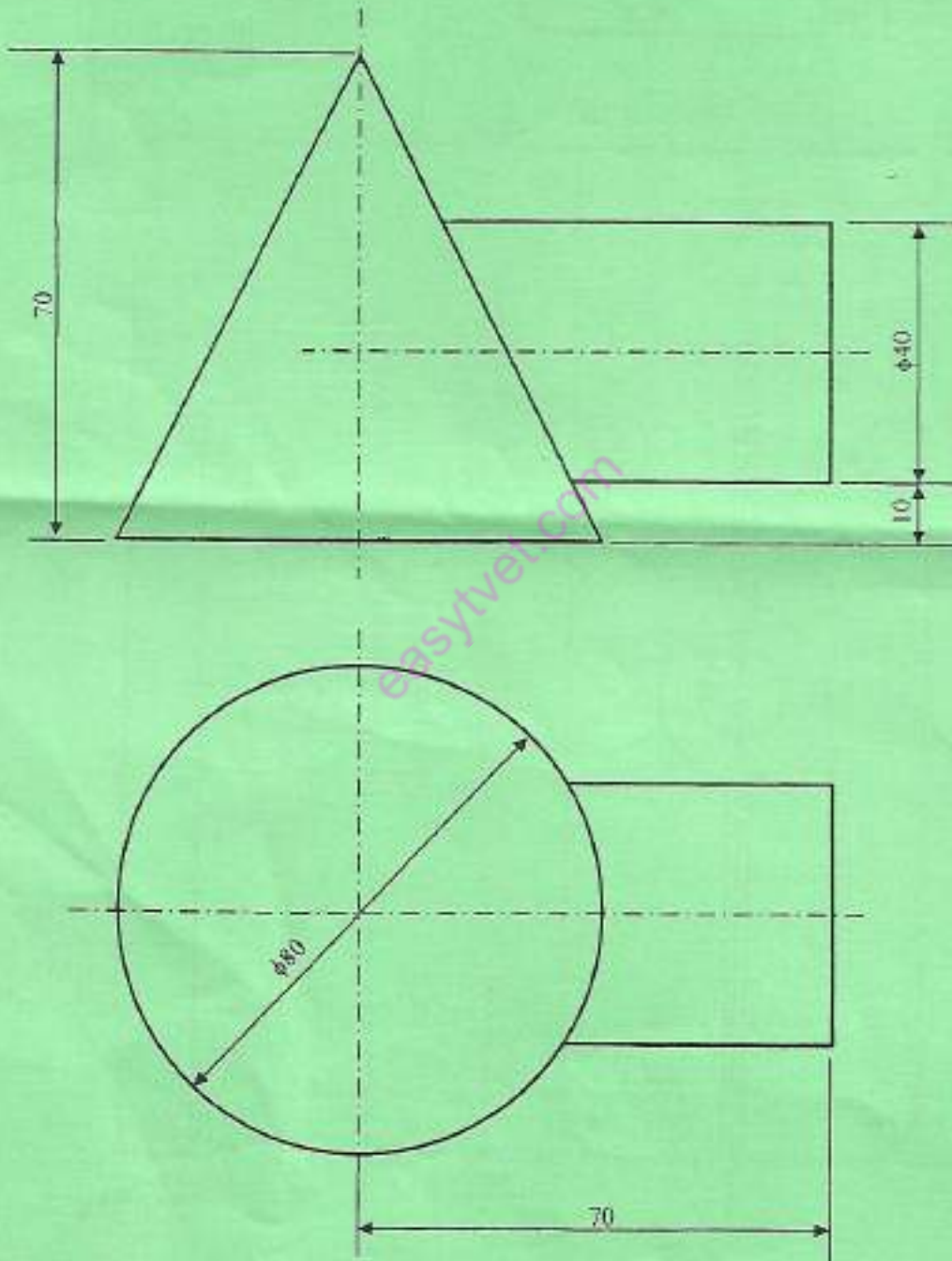
3. **Figure 3** shows a line diagram of a slotted crank and link of a shaping machine mechanism. The link AC is attached to a fixed point A about which it is free to move about the fixed point on the disc. The disc rotates about centre O. Attached to C and free to move easily about the points C and D, is the link CD. D is also free to slide along DE. Plot the loci of C and P on the link CD, when the disc rotates anticlockwise. Clearly show the full travel of B on AC in mm.
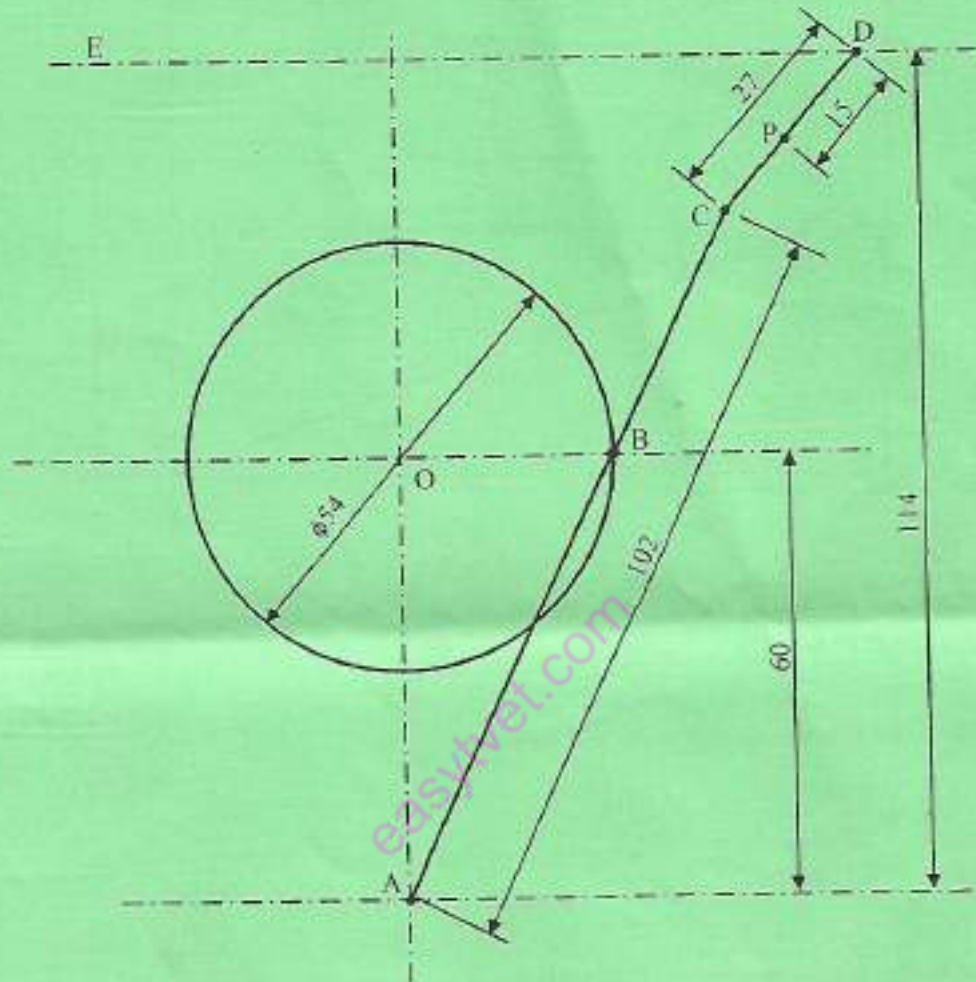
(15 marks)

Fig. 3

4. (a) **Figure 4** shows the front elevation and plan of a line in space drawn in first angle projection. Determine the true length of the line and the angle between the line and the vertical plane. (6 marks)
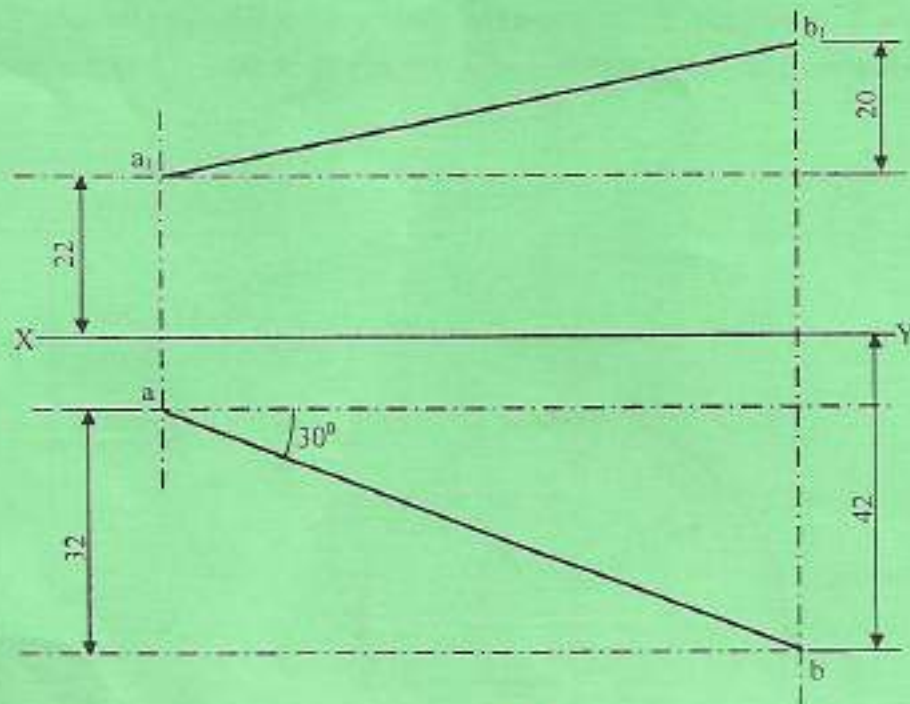

Fig. 4

(b) Construct one complete turn for a right hand helix of 48 mm diameter and 84 mm lead. (9 marks)

5. (a) Draw the following screw thread forms:

   (i) ACME;
   (ii) buttress;
   (iii) ISO metric.

   (9 marks)

   (b) Draw the following screw fasteners:

   (i) slotted round screw;
   (ii) slotted cheese screw.

   (6 marks)

6. (a) Describe the following CADD materials, giving two examples in each case:

   (i) optical discs;
   (ii) magnetic discs.

   (8 marks)

   (b) Outline the steps followed to draw a rectangle by area method using CADD. (7 marks)

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