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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.**

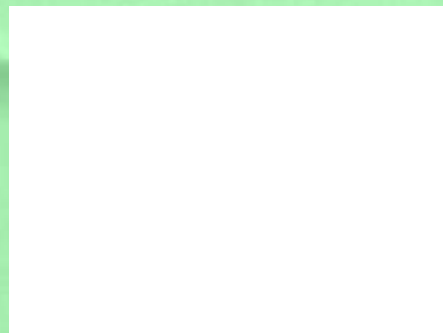
**SECTION A (40 marks)**

*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)





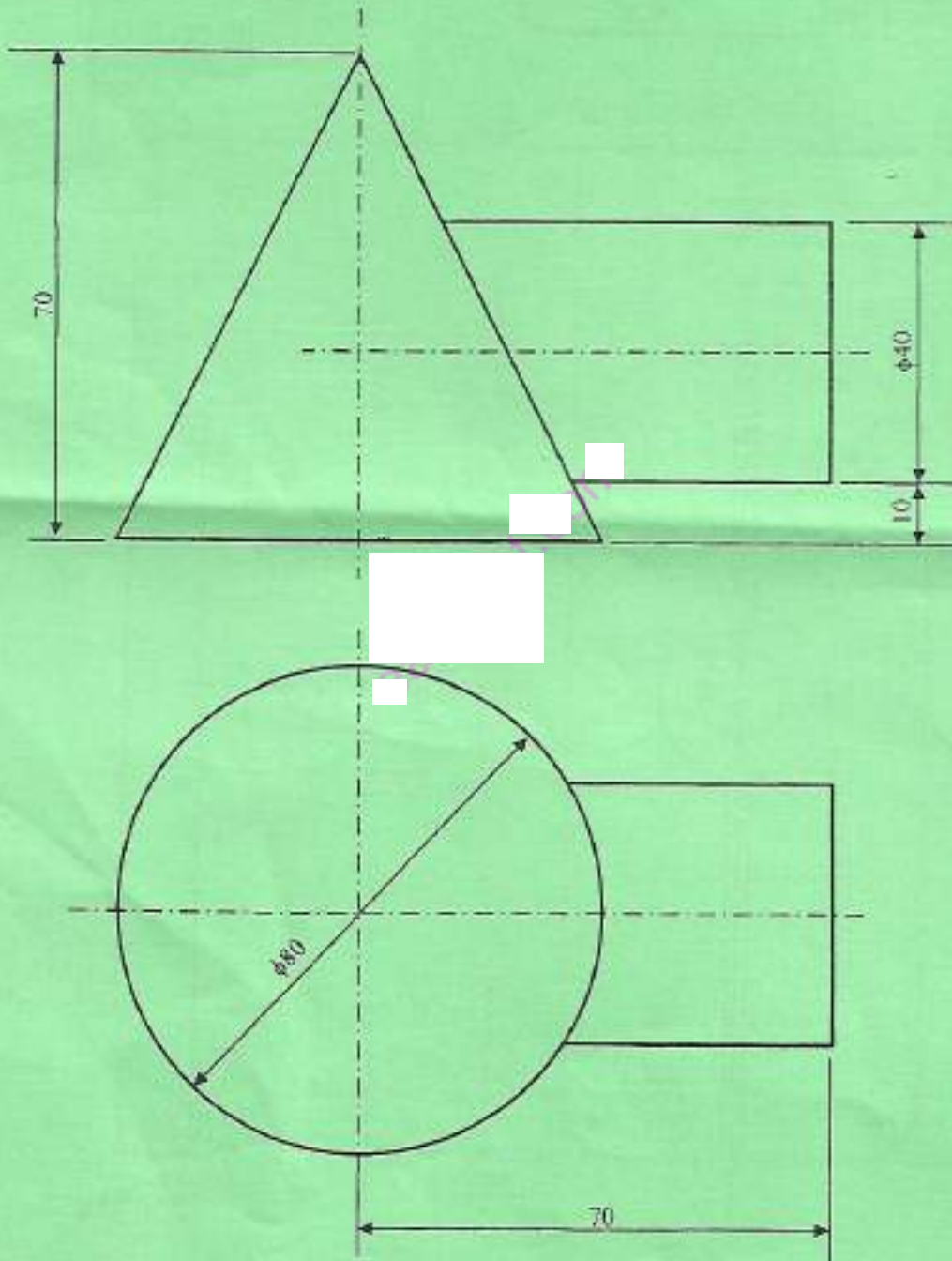
SECTION B (60 marks)

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)



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)

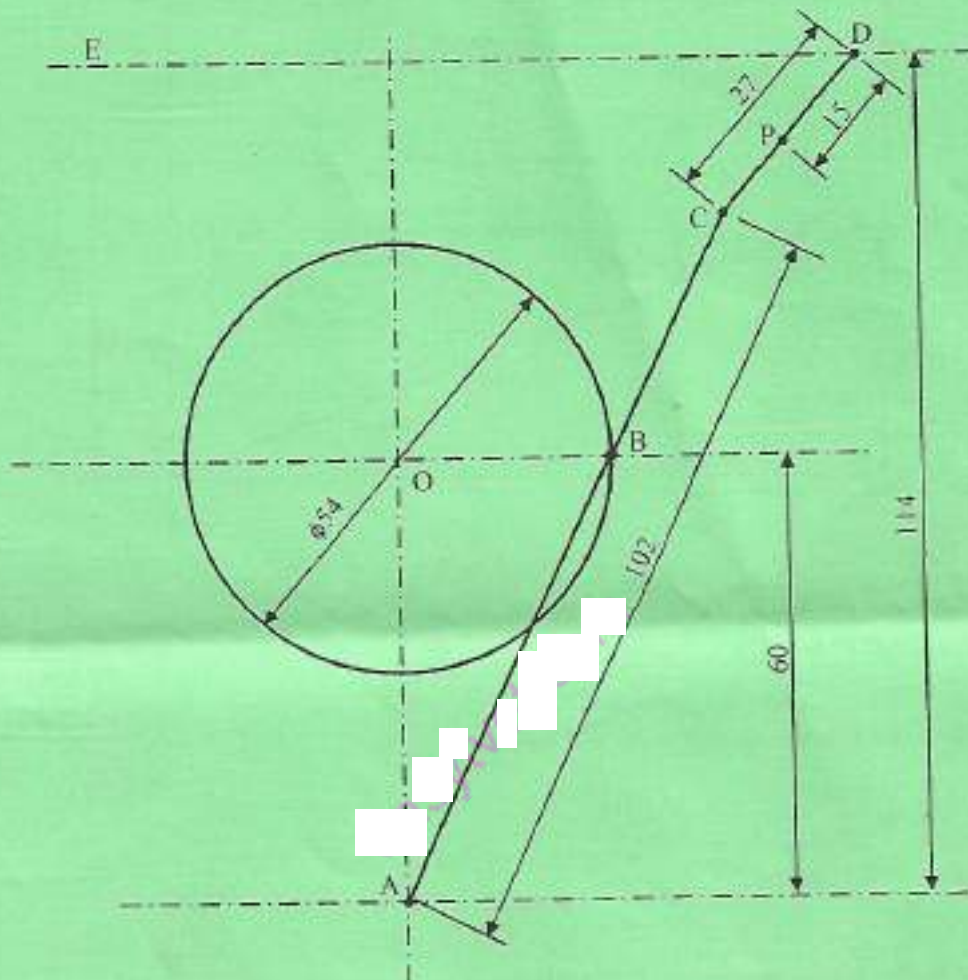


Fig. 3

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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)

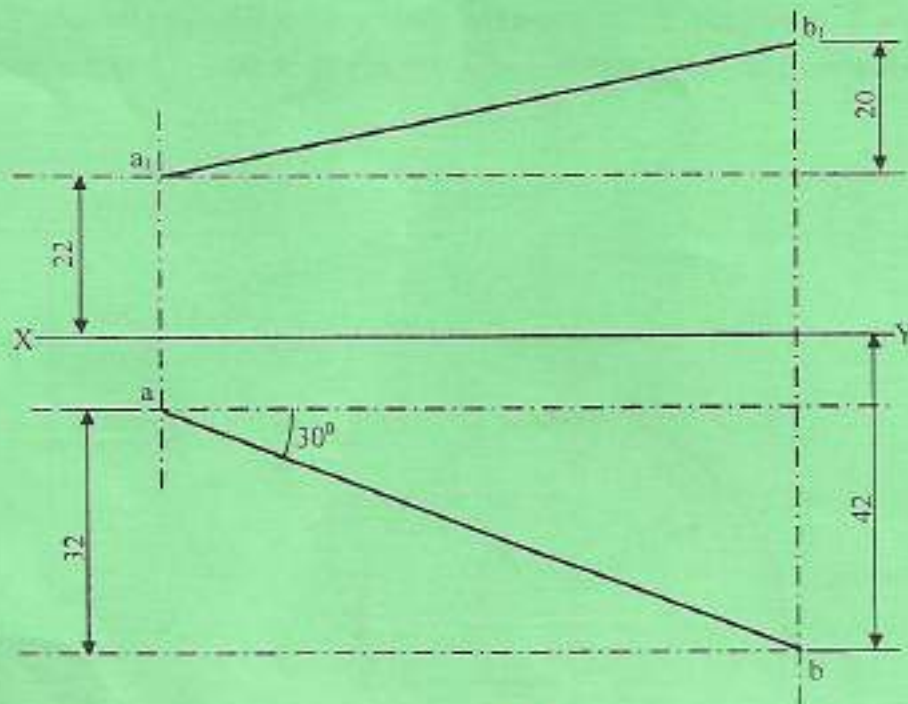


Fig. 4

- (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: (9 marks)
- ACME;
  - buttress;
  - ISO metric.
- (b) Draw the following screw fasteners: (6 marks)
- slotted round screw;
  - slotted cheese screw.
6. (a) Describe the following CADD materials, giving two examples in each case: (8 marks)
- optical discs;
  - magnetic discs.
- (b) Outline the steps followed to draw a rectangle by area method using CADD. (7 marks)

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