

DRAWING AND DESIGN

PAPER 1

449/1

TIME 2 ½ HOURS

SUKELLEMO EXAMS 2022 TERM 2

INSTRUCTION TO CANDIDATES

- a) You should have the following for this examination
 - drawing instruments
 - 4 sheets of paper size a4
 - 4 sheets of drawing paper size a3
- b) This paper consists of three sections a b and c
- c) Answer all the question in section a and b and any two questions from section c
- d) All dimensions are in millimeters unless otherwise stated

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1 a) State three ways of caring drawing instruments

(3mks)

b) name three types of lines used in technical drawing and state where each is applied (3mks)

2 Explain the use of each of the following in drawing

(4mks)

- a) Sketches
- b) Assembly drawing
- c) Exploded views
- d) Working drawings

3 a) State three factors to consider when choosing materials for engineering works (3mks)

b) Explain the meaning of the term alloy as applied in materials and give two examples

(2mks)

4 a) use sketches to show three ways of dimensioning arcs in drawing

(3mks)

b) use a cuboid to illustrate the difference between oblique projection and one point perspective projection in drawing

(2mks)

5 Construct a regular heptagon given that the length of one side is 30mm

(5mks)

6 a) Explain the difference between artistic drawing and technical drawing

(2mks)

b) Define each of the following properties of materials

(3mks)

- i) malleability
- ii) toughness
- iii) brittleness

7. Figure 1 shows the front elevation of a cone tilted at an angle

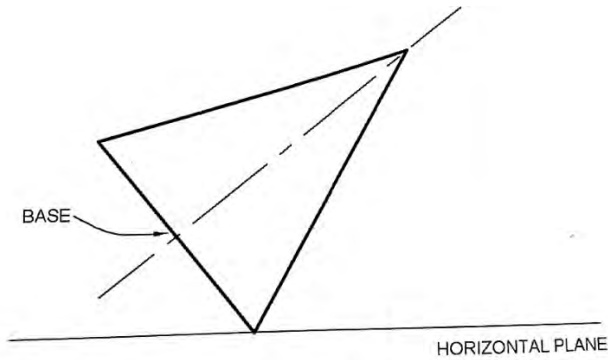


Figure 1

Sketch in good proportion the end elevation and plan of the cone (5mks)

8. Construct a plain scale in which 30mm represent 10mm to read upto 50mm/ show the reading of 23mm/ (5mks)

9. Figure 2 shows the front elevation of a truncated hexagonal pyramid Draw the given view and complete plan and end elevation in first angle projection (10mks)

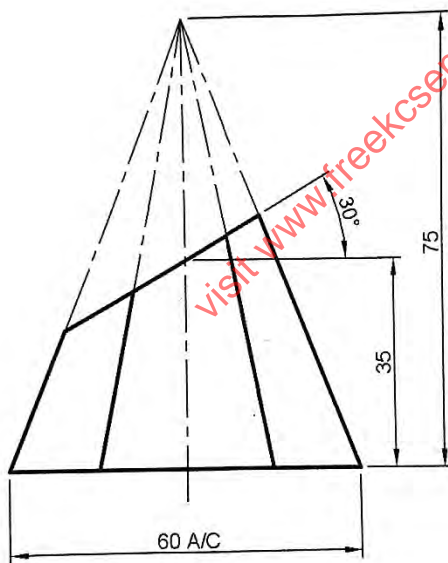


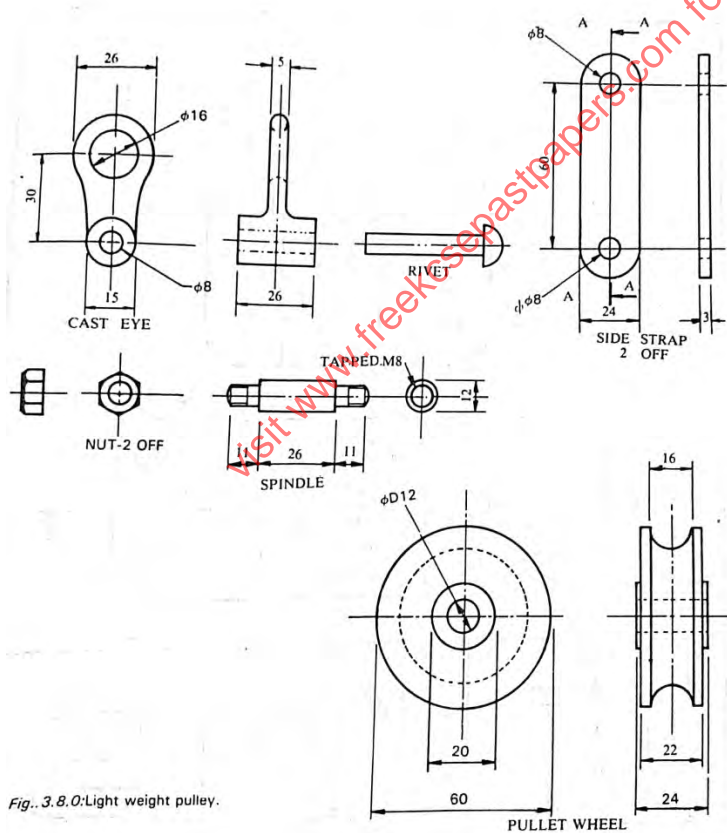
Figure 2

Section B

This question is compulsory. Candidates are advised to spend not more than one hour on this question.

10) Detail drawings of a lightweight pulley are shown below. The wheel is located on the 12mm diameter spindle at the ends of which are bolted two side traps. The cast eye is held between the side traps by an 8mm diameter round head rivet. Assemble the parts and draw;

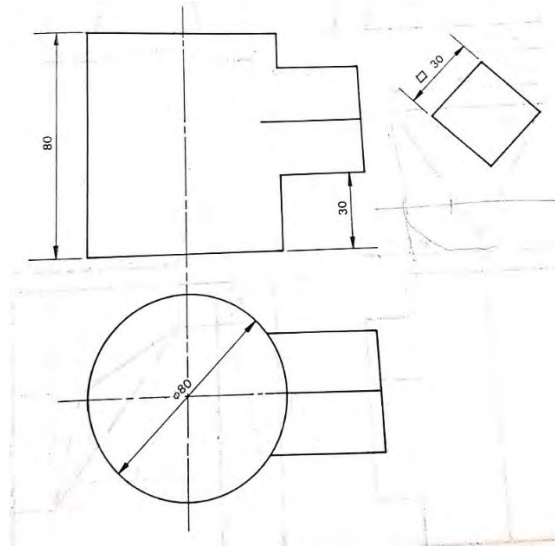
- i) A sectional front elevation on the cutting plane A-A
- ii) The end elevation



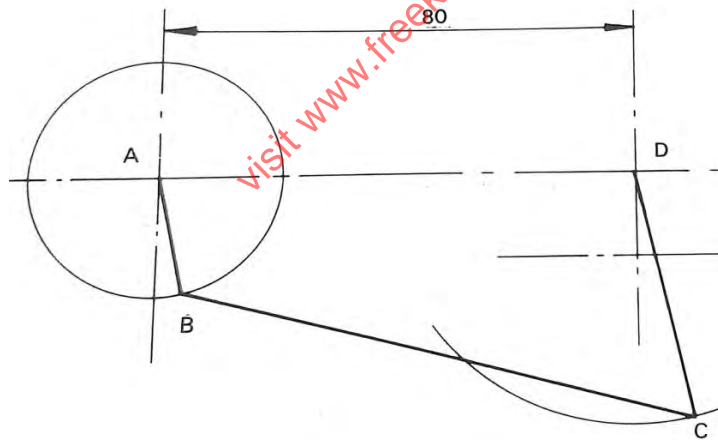
Section c

Answer any two questions in this section

11 The figure below shows views of interpenetrating geometrical solid. Draw the given views and complete the line of intersection and the development of the solid. **(15mks)**



12 In the mechanism below, the crank AB rotates about Centre A. while CD oscillates about Centre D. Plot the locus of point P, the midpoint of connecting rod BC. **(15mks)**



AB=20

BC= 90

CD=45

13) Orthographic views of a machine parts are shown below

Make oblique projection of machine parts (15mks)

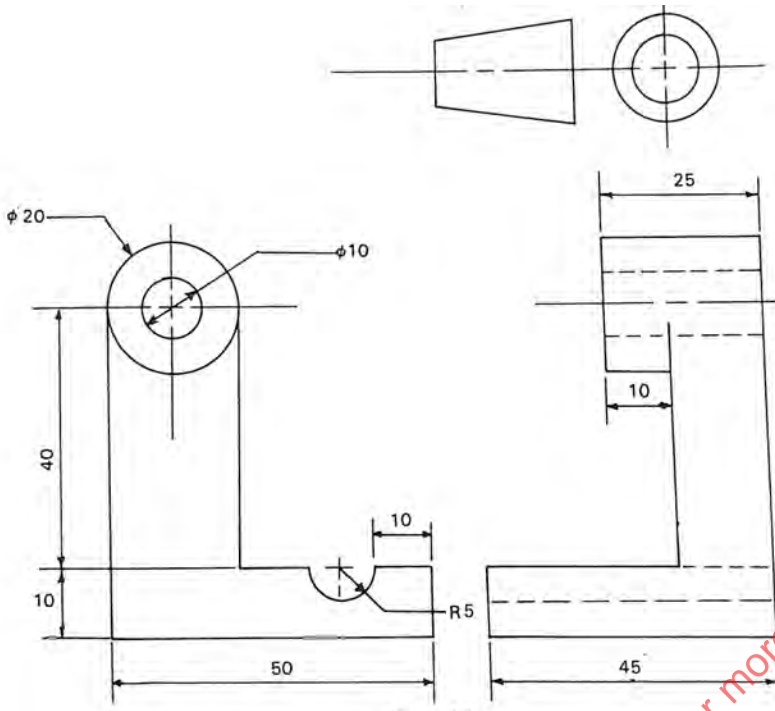


Fig. 2.25

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