4.21 DRAWING AND DESIGN (449)

4.21.1 Drawing and Design Paper 1 (449/1)

1. (a)
- Ability to identify business opportunity.
- Ability to mobilize or get resources.
- Ability to start and run a business.
- Ability to pursue self employment
- Ability to solve problems
- Ability to take risks

(3 x 1 = 3 marks)

(b)
- for draughting / design
- reference / research
- storage
- editing
- sharing / dissemination
- display / view
- printing
- drawing

(Any 4 x $\frac{1}{2}$ = 2 marks)

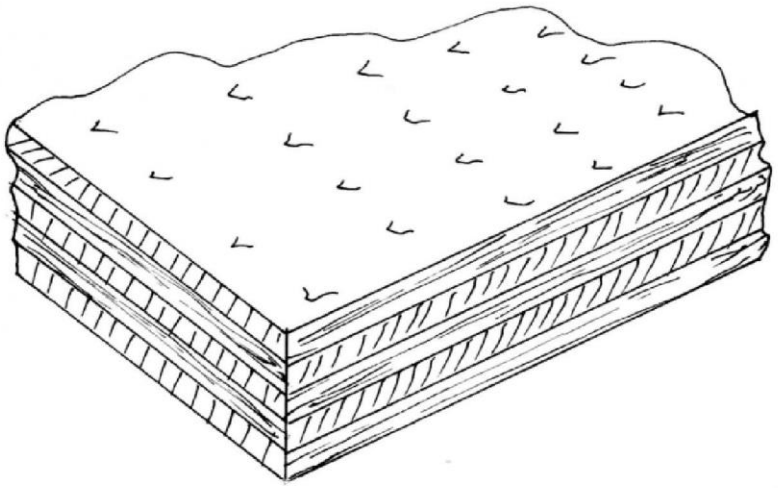
2. (a)
- conical / pointed for drawing visible outlines
- chisel - construction of lines, circles and arcs.

Method 2 x $\frac{1}{2}$ - 1
Use 2 x $\frac{1}{2}$ - 1
(2 marks)

(b)
- Uniformity in height / use of guide lines
- proportionality
- strength of lines/outlines
- spacing of words / letters
- consistency is style (either upright or slanting)

Any 2 x 1 = 2 marks

3. (a)



(5 x $\frac{1}{2}$ = 2$\frac{1}{2}$ marks)
5 correctly indicated grains direction 5 x $\frac{1}{2}$ = 2$\frac{1}{2}$

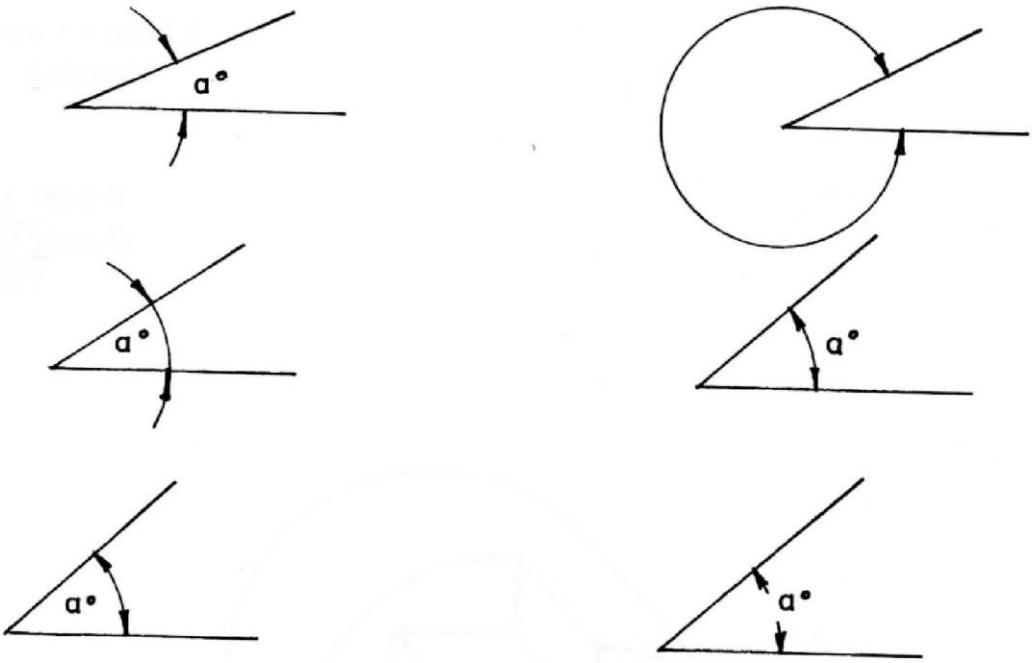
(b) Design situation is the need to solve a problem,
while design a brief is a written statement which indicates the how the problem is be solved and what is to be designed.

design situation - 1 x 1 = 1
design brief - 2 x 1 = 2
3 marks

4. (a)
(i) Item number
(ii) Description
(iii) Material
(iv) No. off / number required
(v) Title
(vi) Number of components required

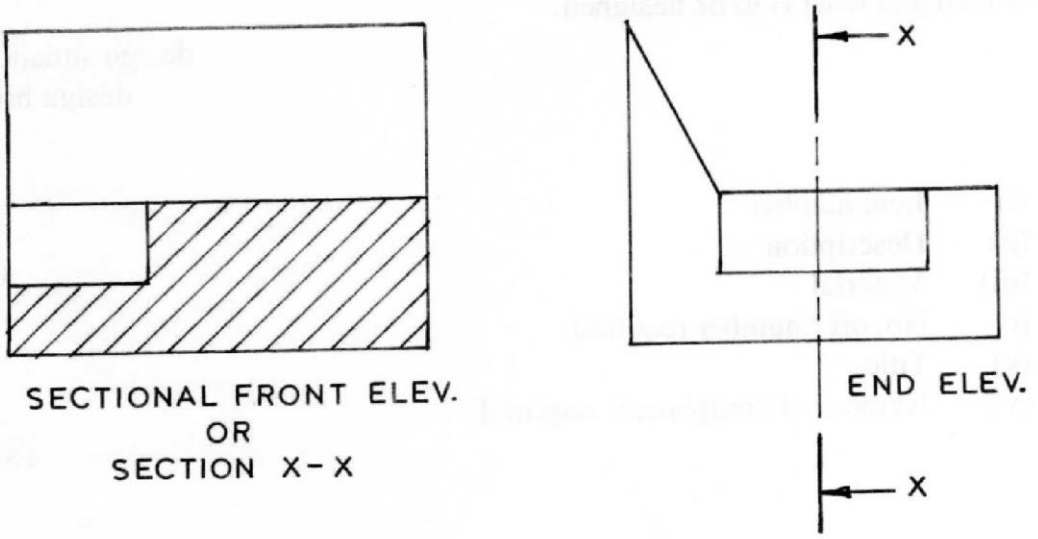
4 x $\frac{1}{2}$ (2 marks)

(b)



4 x $\frac{1}{2}$ (2 marks)

5.



SECTIONAL FRONT ELEV.
OR
SECTION X-X

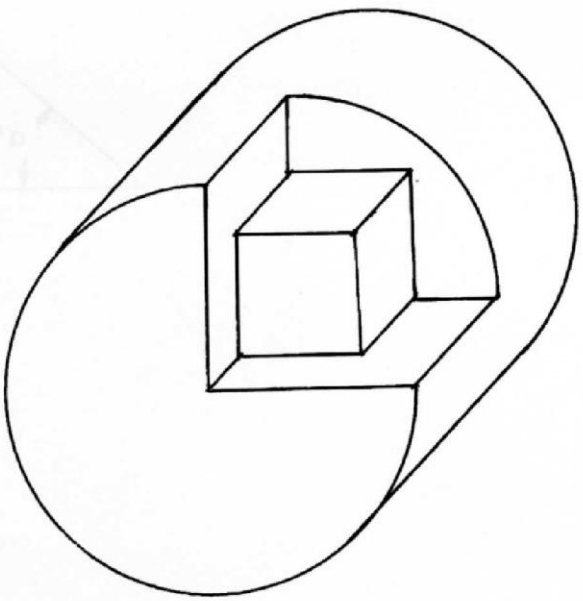
Front elev.

3 faces x 1 mark = 1 mark
Hatching $\frac{1}{2}$ = $\frac{1}{2}$ mark

End elev.

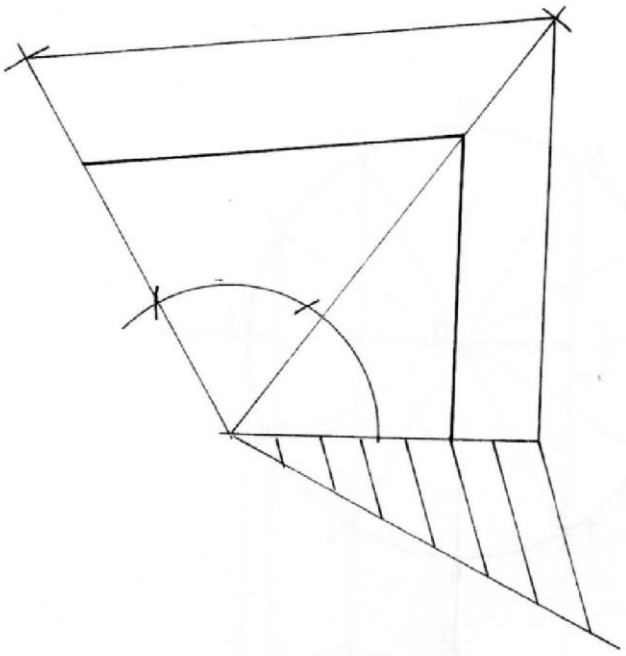
2 faces x 1 = 2 marks
Cutting plan = $\frac{1}{2}$ mark
Total = 6 marks

6.



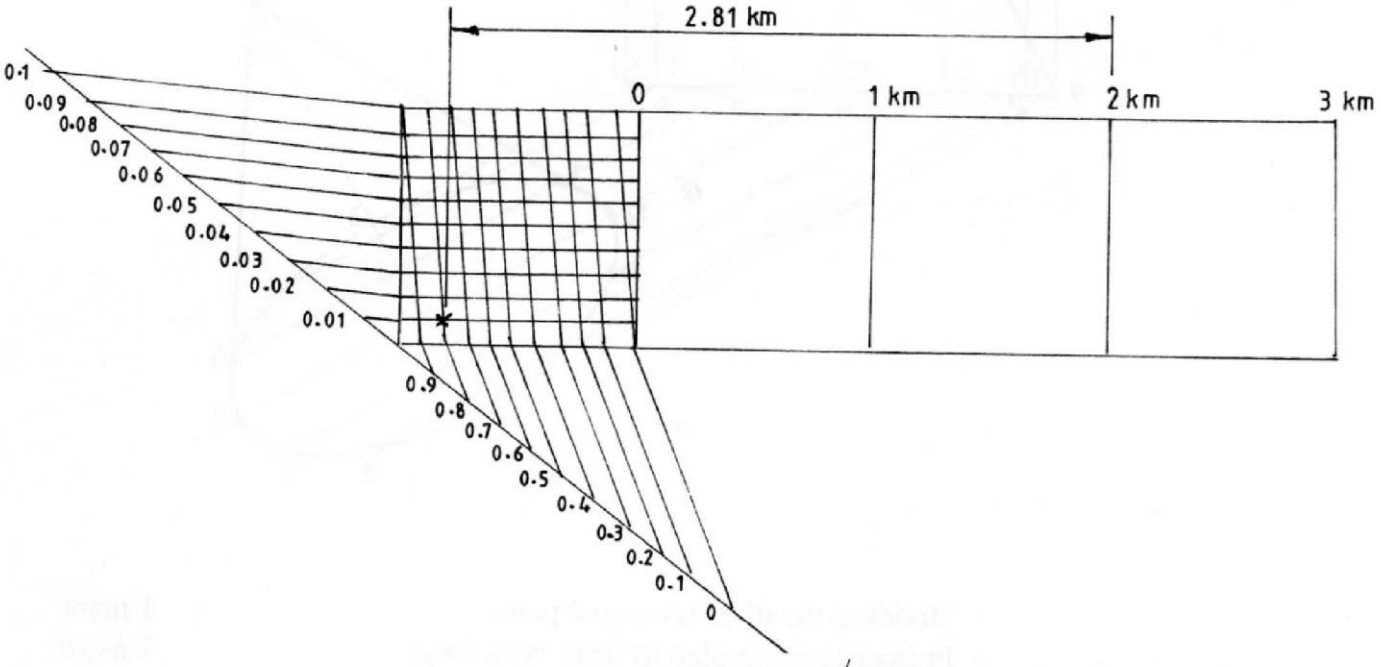
Any 8 faces x $\frac{1}{2}$ = 4 marks
√ projection = 1 mark
Line work / neatness = 1 mark
6 marks

7.



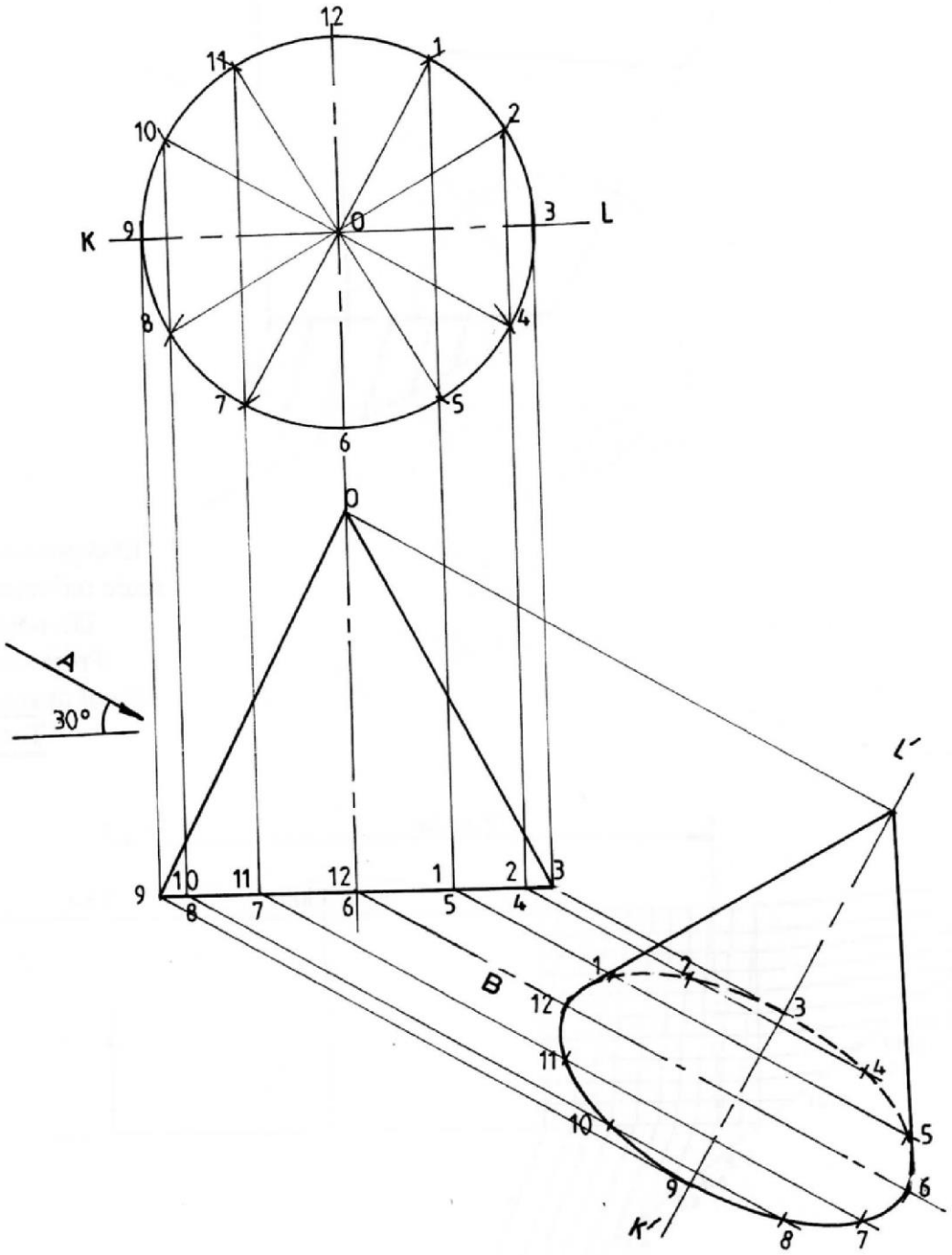
Interpretation of
scale reduction - 1 mark
Divisions - 1 mark
Projection - 1 mark
Final drawing - 1 mark
Total = 4 marks

8.



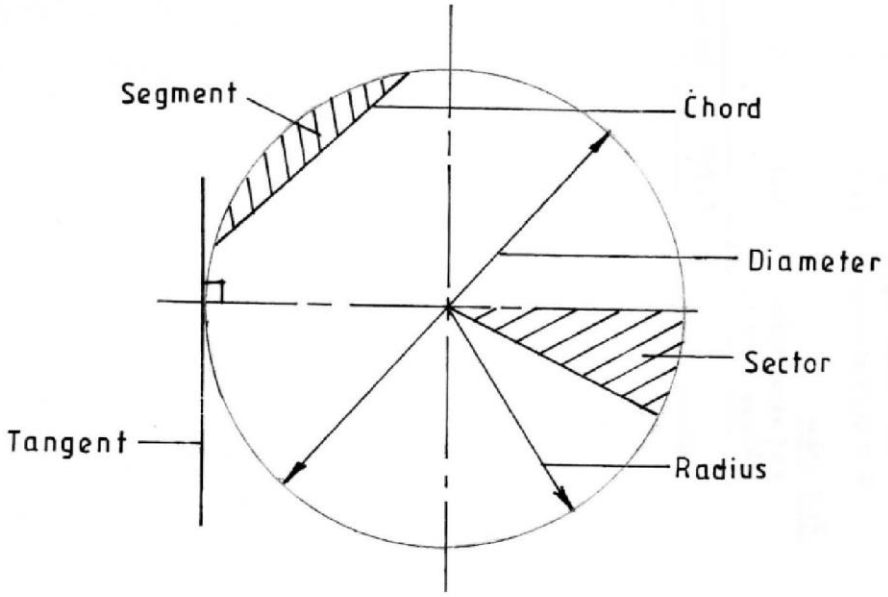
√Determining the 4km length - 1 mark
√Labelling of scale 0 - 3 km - 1 mark
√Construction of diagonal scale
√Horizontal - 1 mark
√Vertical - 1 mark
√Diagonal - 1 mark
√Indication of 2.81 km reading
6 marks

9.

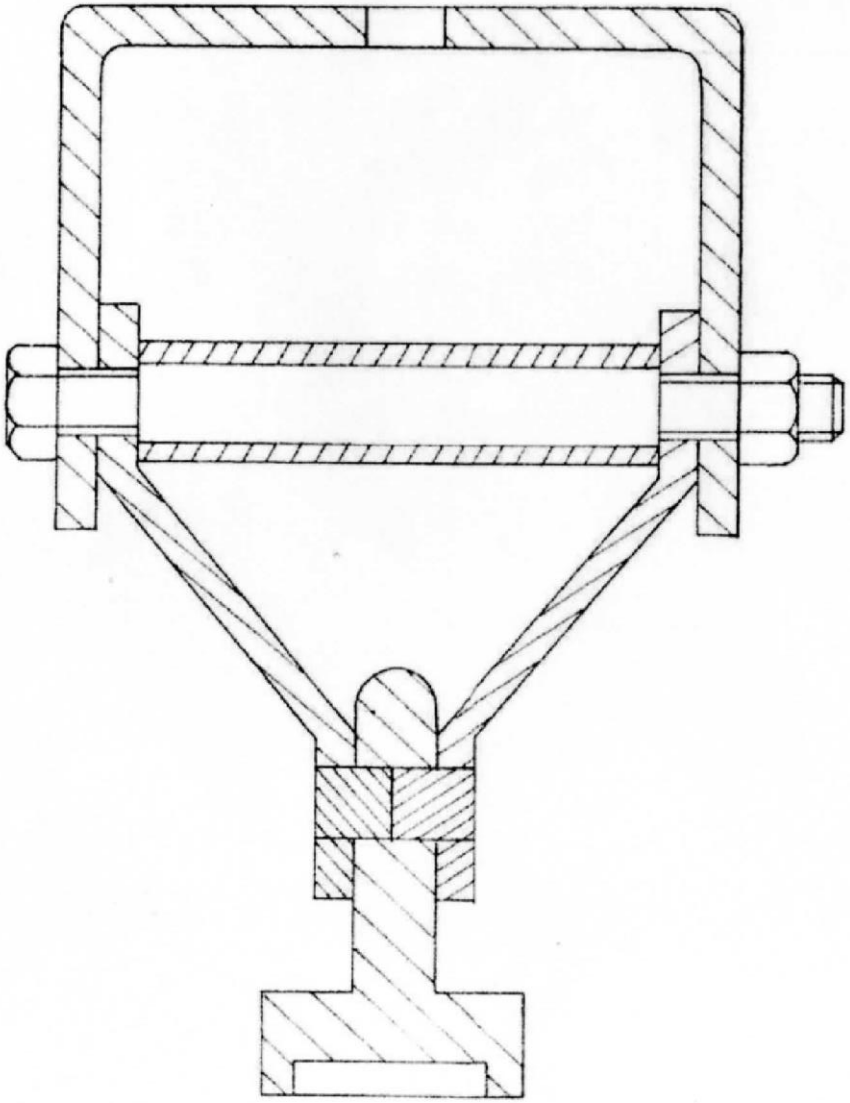


- Dividing the plan into equal parts	1 mark
- Projection from plan to front view base	1 mark
- Projection from front (base & apex) to Aux view	1 mark
- Determining centre line of Aux. view ⊥ to projections	1 mark
- Transfer parts from plan to auxilliary base	$\frac{1}{2}$ mark
- Joining the parts to form a smooth curve	1 mark
- Showing √ hidden details	$\frac{1}{2}$ mark
Total	**6 marks**

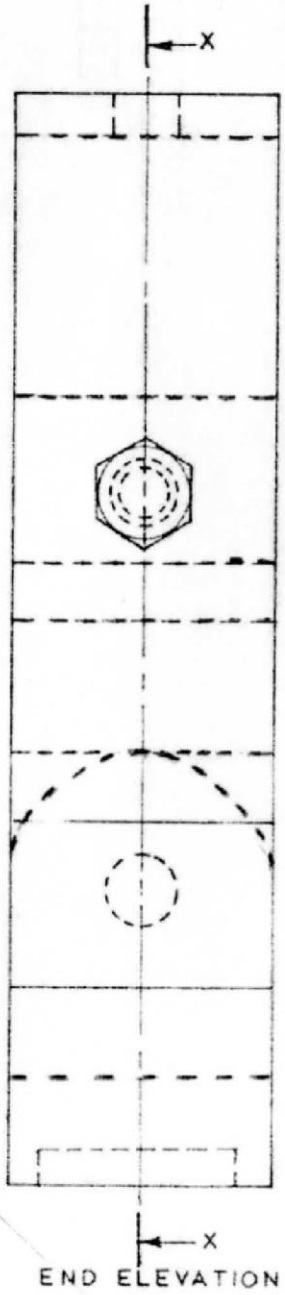
10.



Sketch = $1\frac{1}{2}$ marks
6 labels @ $\frac{1}{3}$ = 2 marks
$3\frac{1}{3}$ marks



SECTIONAL FRONT ELEVATION X X



END ELEVATION

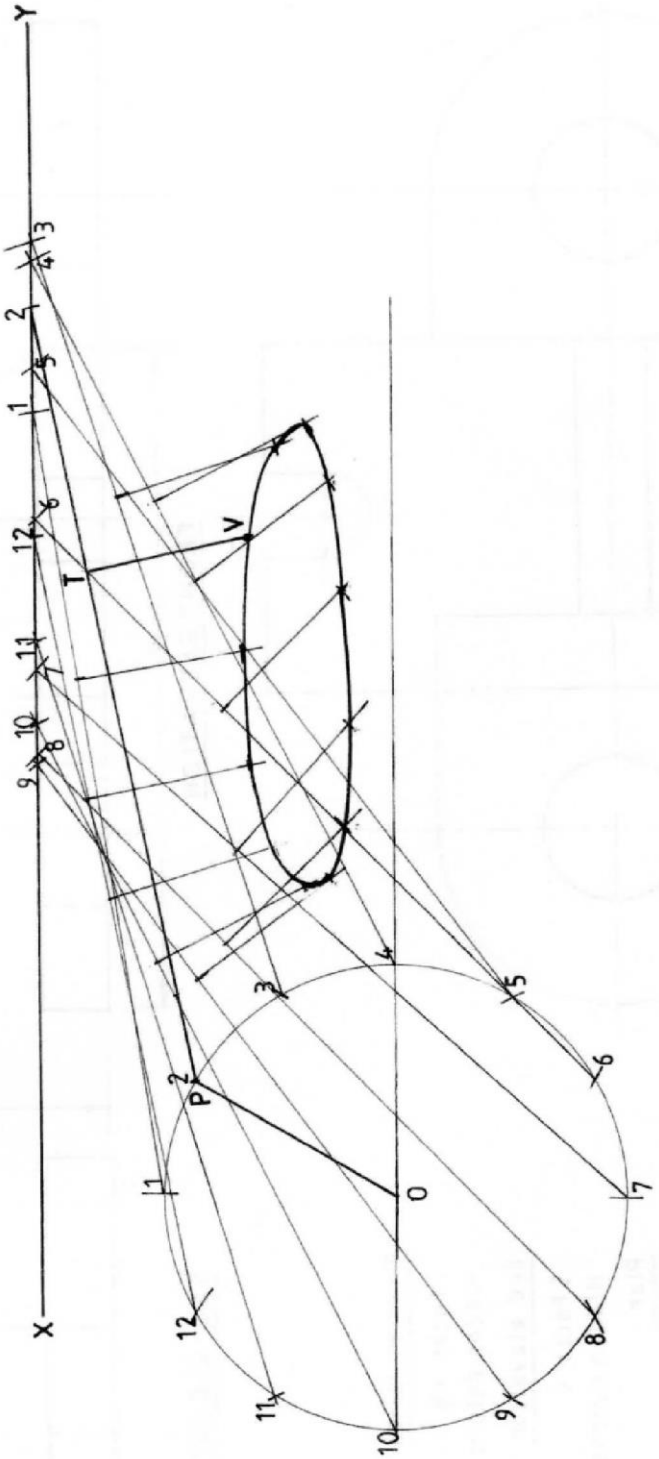
Front view

7 Assembled parts	7 × 1	= 7
5 Sectioned areas	5 × 1	= 5
Bolt and nut constr	2 × 1	= 2

End view

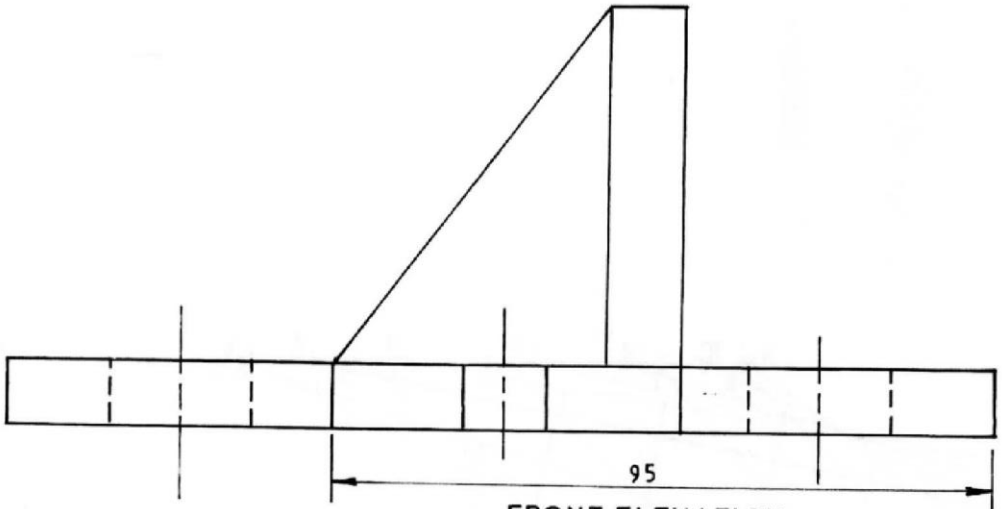
End view faces	5 × 1	= 5
Hidden details		= 1
	Total	= 20 mks

12.

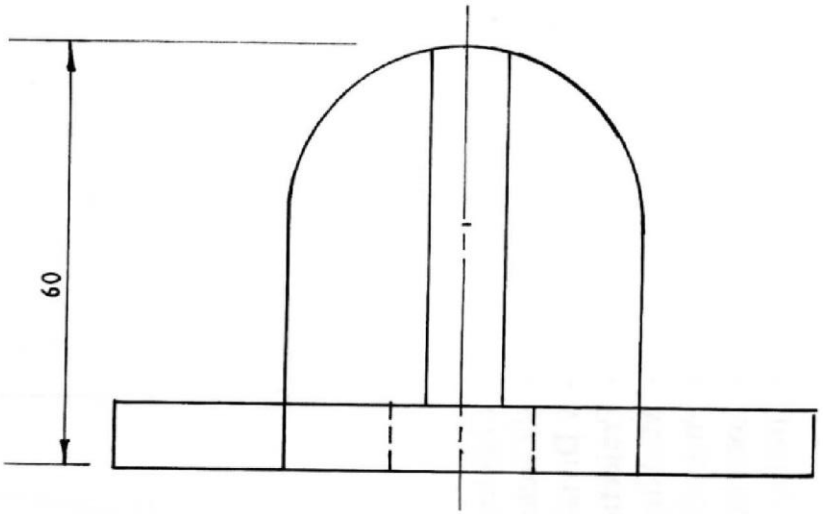


- Copying the figure	- 4 links x $\frac{1}{2}$	2 marks
- √ Circle	-	1 mark
- √ Division of circle	-	2 marks
- Projection of PV's to XY	-	2 marks
- Marking of point T	-	2 marks
- Projecting of TV from point T	-	2 marks
- Locating of different positions of V	-	2 marks
- Joining the points of V to form a smooth curve		2 marks
	Total	**15 marks**

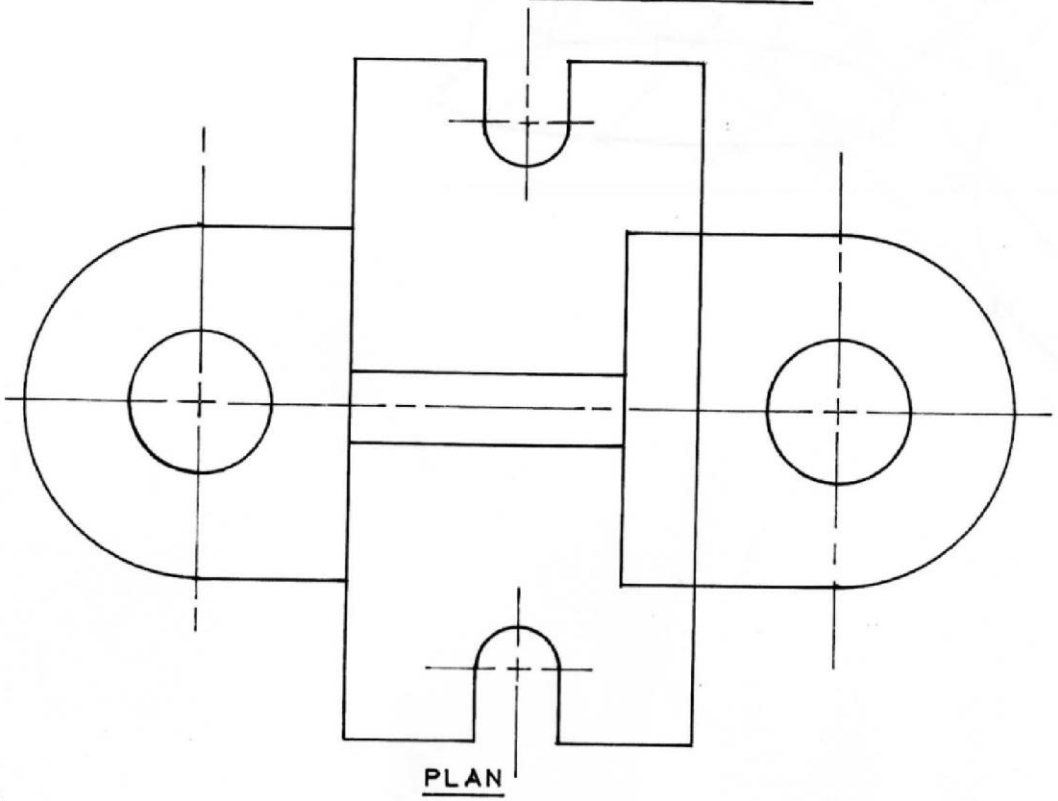
13.



FRONT ELEVATION



END ELEVATION



PLAN

Front elevation

7 Faces x ½	=	3½
Hidden details x 2 x ½	=	1

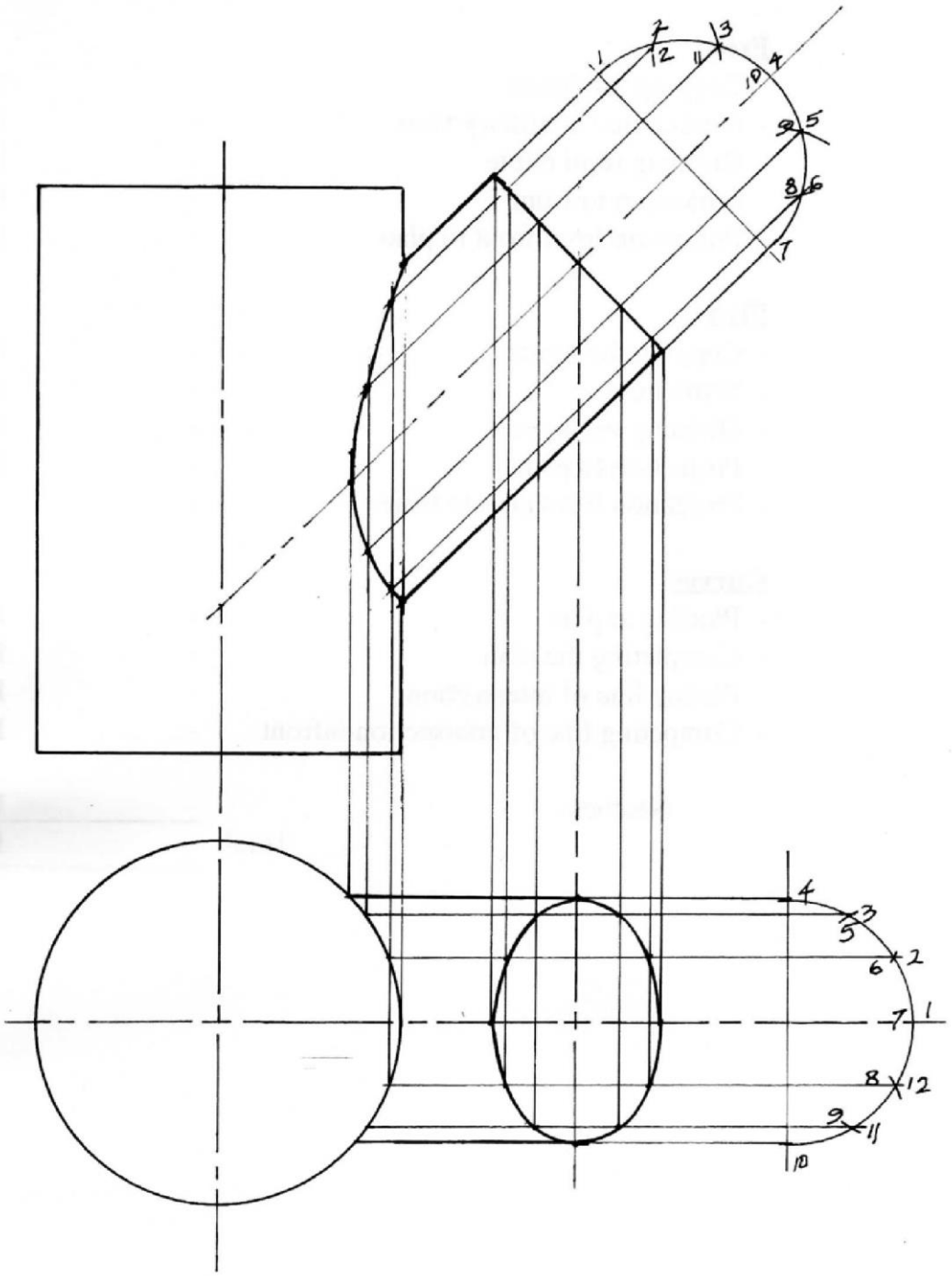
End elevation

5 Faces x	=	2½
Hidden details 3 x ½	=	1½

Plan

7 Faces x ½	=	3½
Angle of projection	=	1
Centre lines	=	1
Neatness/ Linework	=	1
Total	=	**15 mks**

14.



Front

- Copying the figure	-	1 mark
- Semicircle / auxilliary view	-	1 mark
- Dividing semi circle	-	1 mark
- Projection to front	-	1 mark
- Projection from front to plan	-	1 mark

Plan

- Copying the figure	-	1 mark
- Semicircle	-	1 mark
- Dividing semi circle	-	1 mark
- Projection to plan	-	1 mark
- Projection from plan to front	-	1 mark

Curves

- Plotting at plan	-	1 mark
- Completing the plan	-	1 mark
- Plating line of intersection	-	1 mark
- Competing line of intersection infront	-	1 mark
Neatness	-	1 mark
Total		**15 marks**