PVP 23

Code: 23ES1104

I B.Tech - I Semester – Regular Examinations – JANUARY 2024

ENGINEERING GRAPHICS

(Common for IT, ME)

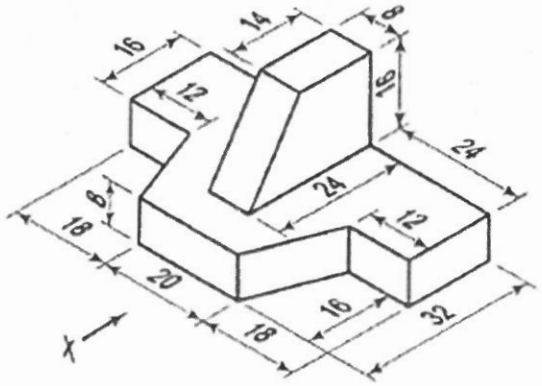
Duration: 3 hours Max. Marks: 70

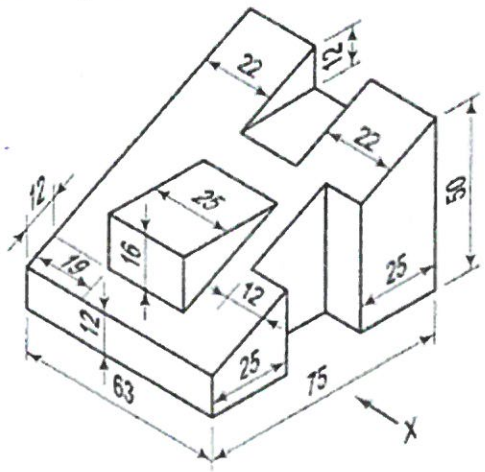
Note: 1. This question paper contains 5 essay questions with an internal choice from each unit. Each question carries 14 marks.
2. All parts of Question must be answered in one place.

BL – Blooms Level CO – Course Outcome

			BL	CO	Max. Marks
		UNIT-I			
1		Draw an epicycloid if a circle of 40 mm rolls outside another circle of 120 mm diameter for one revolution. Draw normal and tangent to the curve at any point.	L3	CO1	14 M
		OR			
2		An area of 144 square cm on a map represents an area of 36 square km on the field. Find the RF of the scale and draw a diagonal scale to show km, hm and dm in order to measure up to 10 km. Indicate on this scale a distance of (i) 7 km, 9 hm and 9 dm (ii) 5 hm and 6 dm.	L3	CO1	14 M
		UNIT-II			
3		A line AB 65mm long has its end A 20mm above the HP and 25mm in front of the VP. The end B is 40mm above the HP and 65mm in front of the VP. Draw the projections of AB and show its inclinations with the HP and VP.	L3	CO2	14 M

	OR			
4	A line AB, 90mm long, is inclined at 45^0 to the HP and its top view makes an angle of 60^0 with the VP. The end A is in the HP and 12mm in front of the VP. Draw its front view and find its true inclination with the VP.	L3	CO2	14 M
	UNIT-III			
5	Draw a rhombus of diagonals 100mm and 60mm long, with the longer diagonal horizontal. The figure discussed above is the top view of a square of 100mm long diagonals, with a corner on the ground. Draw its front view and determine the angle which its surface makes with the ground.	L3	CO2	14 M
	OR			
6	A pentagonal pyramid of base side 30 mm and axis length 60 mm is resting on HP on one of its base corners with it axis parallel to VP. Draw its projections when the slant edge containing the resting corner is vertical.	L3	CO2	14 M
	UNIT-IV			
7	A cone of base diameter 50 mm and axis length 60 mm stands with its base on HP. Draw the true shape of section made by a plane perpendicular to VP and inclined to the HP at 50^0 and passing through a point on the base circle of the cone.	L3	CO2	14 M
	OR			

8	A hexagonal pyramid of side 30 mm and altitude 60 mm is resting on HP on its base with two of the base sides are perpendicular to VP. The pyramid is cut by a plane inclined at 30^0 to HP and perpendicular to VP and is bisecting the axis. Draw the development of the remaining portion of the pyramid.	L3	CO3	14 M
	UNIT-V			
9	Draw the front view, top view and side view of the below figure.  All the dimensions are in mm.	L3	CO4	14 M
	OR			

10	Draw the front view, top view and side view of the below figure.  All the dimensions are in mm.	L3	CO4	14 M

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I B.Tech I Semester Regular Examinations-January-2024
Engineering Graphics
(IT & ME)
Scheme of Evaluation

Unit-1

Q1) Epi-cycloid construction & curve generation carries 5+5= 10 marks; Tangent and normal curve carries 4 marks.

OR

Q2) RF calculation carries 5 Marks, Diagonal scale drawing carries 5 Marks; Distance indications carries 4 marks

Unit-2

Q3) Projection of lines carries 5+5; Inclination representation w.r.t H.P & V.P carries 4 marks

OR

Q4) Projection of line carries 5+5; Front view indication carries 2 marks; true inclination representation carries 2 marks

Unit-3

Q5) Projection of planes; drawing front view, determination of angle carries 5+5+4=14 Marks

OR

Q6) Projection of given pentagonal pyramid with required views carries 5+5+4= Marks

Unit-4

Q7) Drawing projection of solid with required views; sectioned plane representation on front view and sectioned portion on top view carries 5+5+4= 14 Marks

OR

Q8) Draw the projection of hexagonal pyramid with required views; and sectioned with a cutting plane; representing sectional views; develop the front view carries 5+5+4 = 14 Marks

Unit-5

Q9) Draw the orthographic views front, top and side views with required dimensions carries 5+5+4 = 14 Marks

OR

Q10) Draw the orthographic views front, top and side views with required dimensions carries 5+5+4 = 14 Marks

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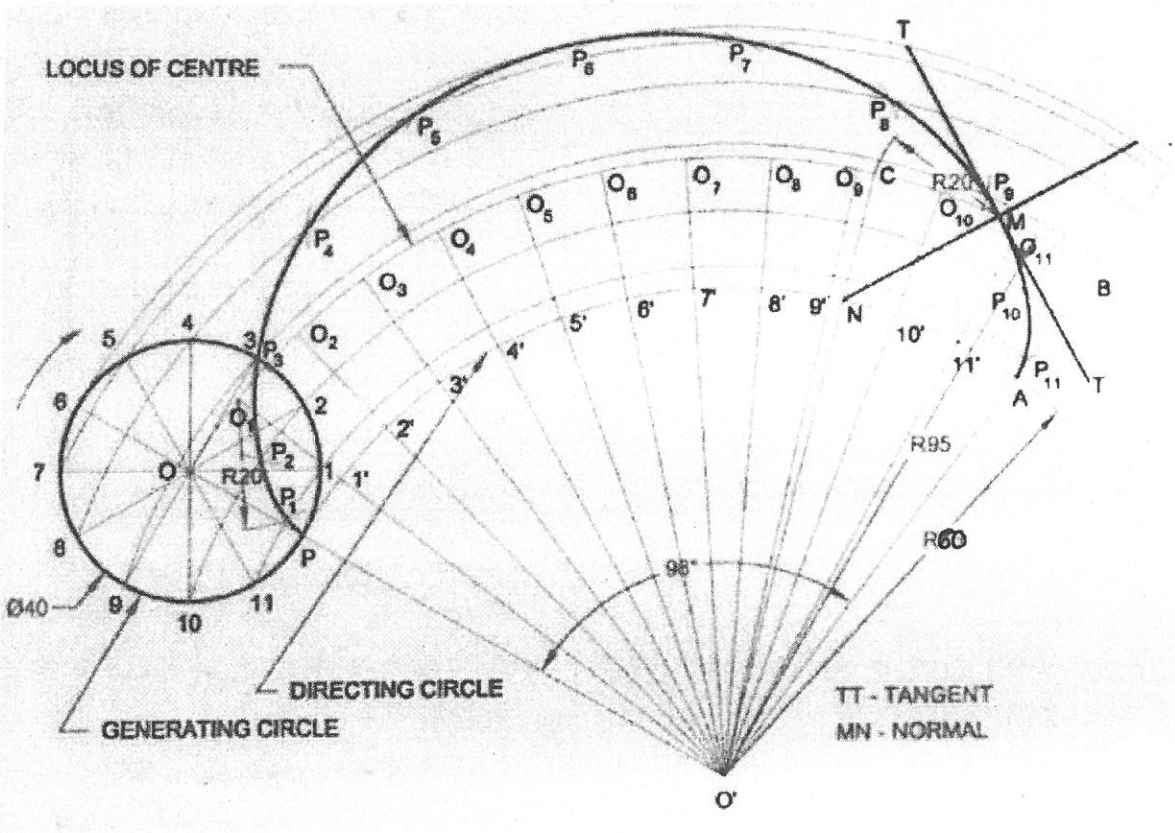
Scheme of Evaluation

UNIT-1

Q1)



(OR)

Q2)

RF = $\sqrt{144 / (36 \times (1000 \times 100)^2)}$ = 1/50,000.

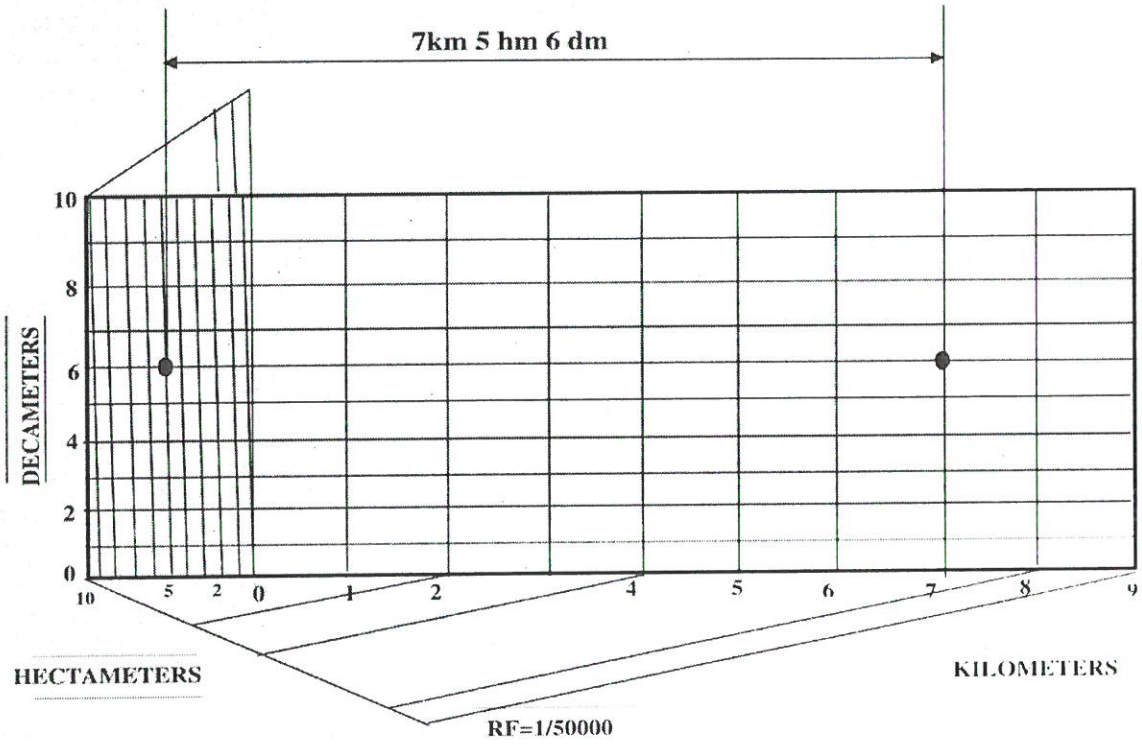
Max Length (ML) = 10 km.

No. of parts of scale (n) = 10 parts (each of 1 km)

Length of scale (LOS) = (1/50000) x 10 x 1000 x 100 cm (1 m=100 cm)

= 20 cm.

The length of the line that is drawn on the drawing sheet is 20 cm. The first division is shown as enlarged for clear understanding.



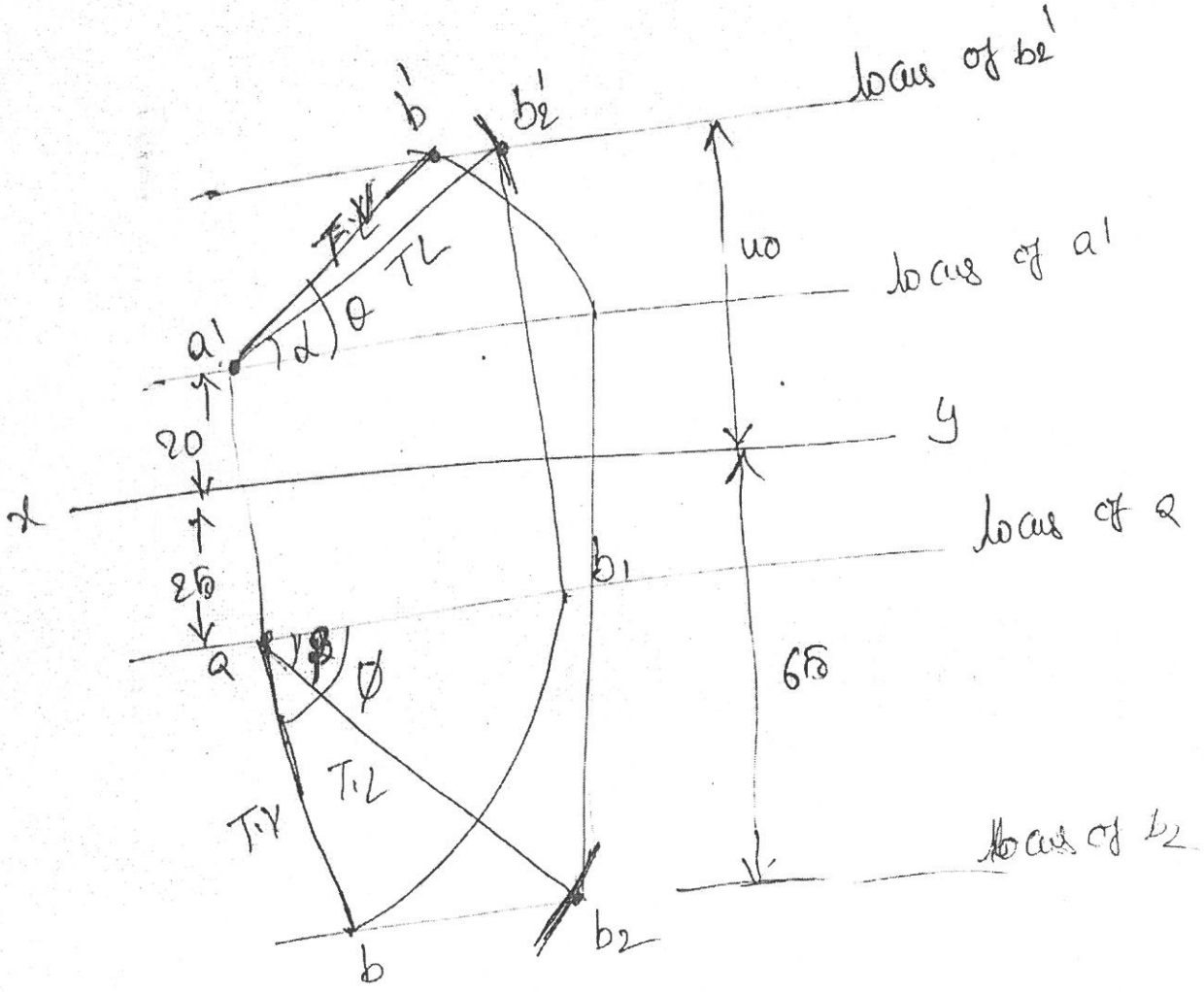
Q.4. (3).

True Length = 65 mm

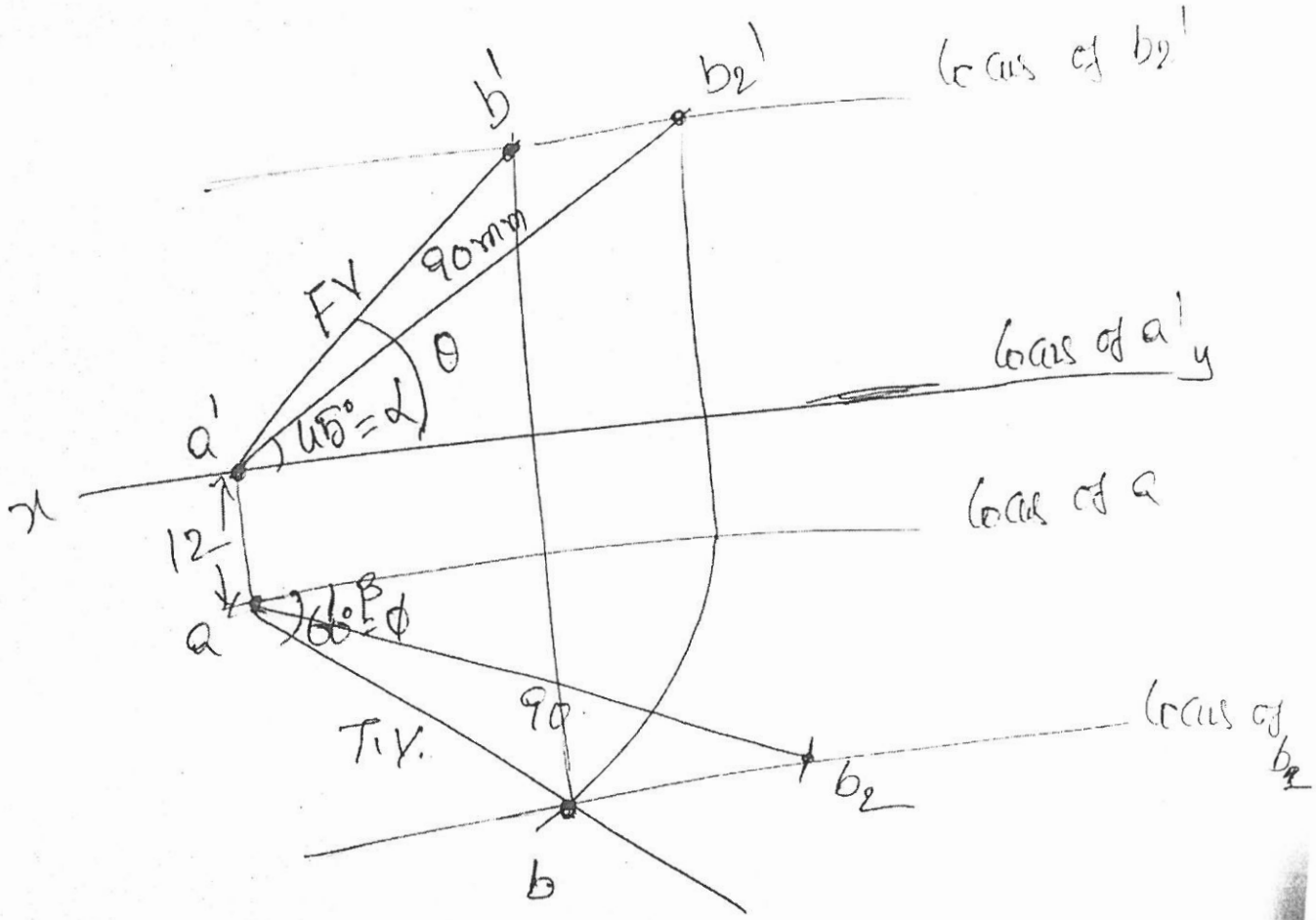
A Position :- 20 mm above HP
25 mm infront of VP.

B Position :- 40 mm above HP
65 mm infront of VP.

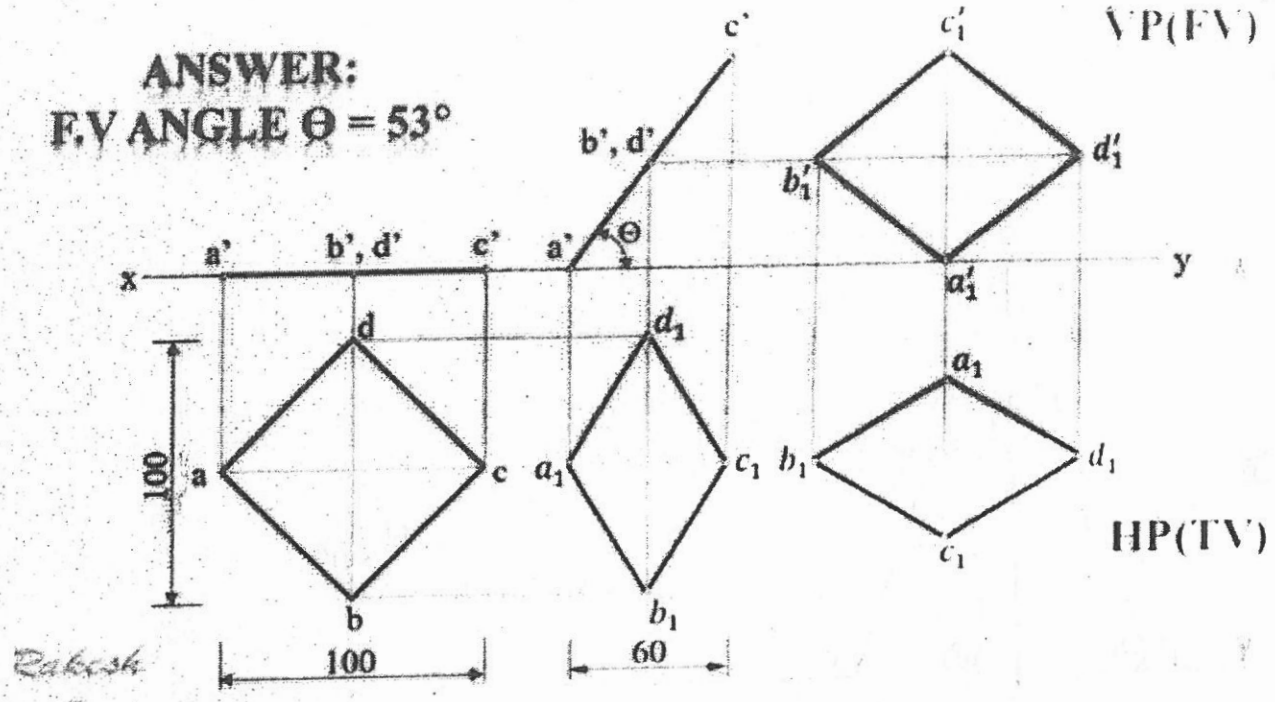
find α = ? β = ?



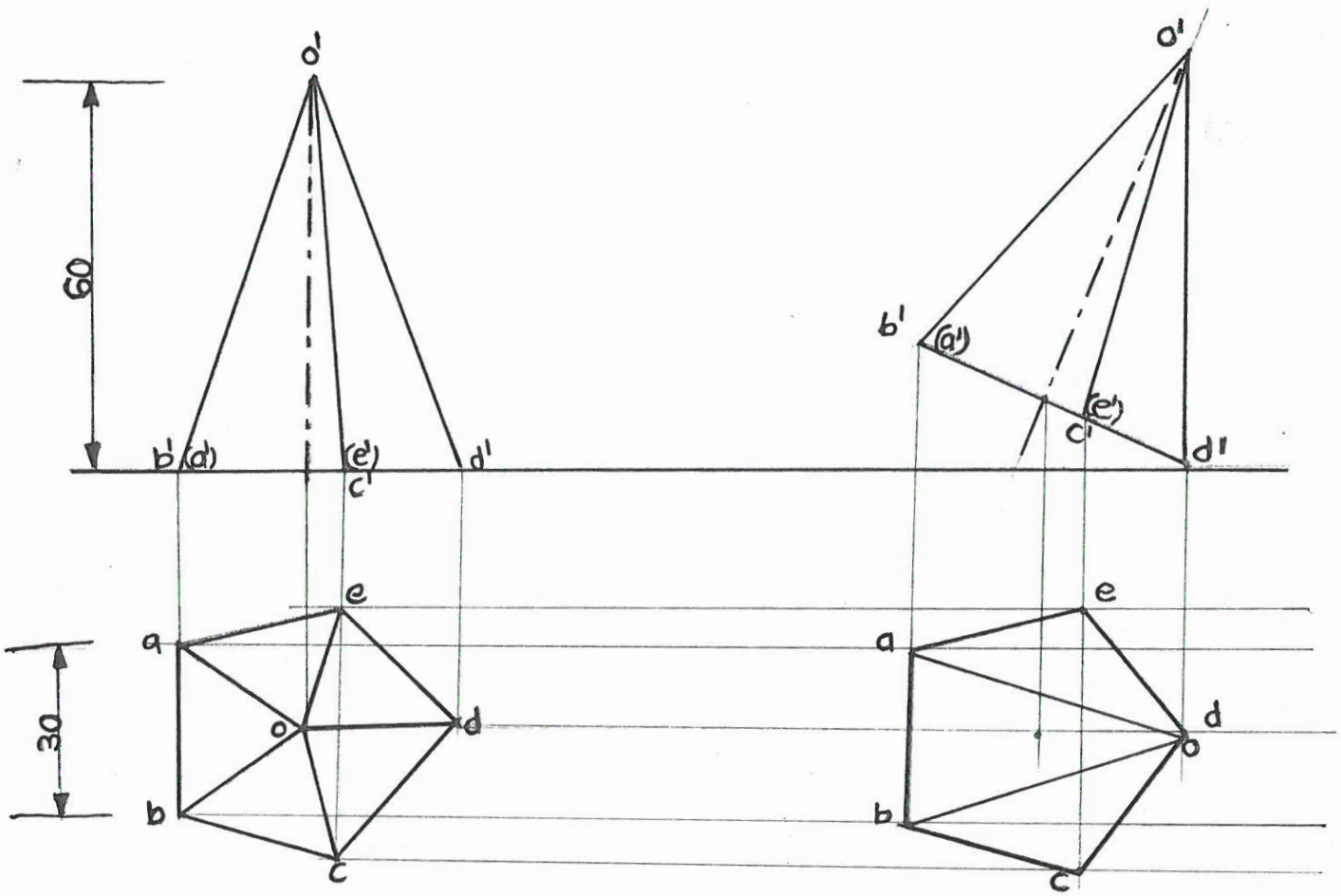
Q^n (4). True length = 90 mm
inclination with H.P = 45° = α
Top view inclination ∅ = 60°
A Point :- in the HP
12 mm infront of V.P



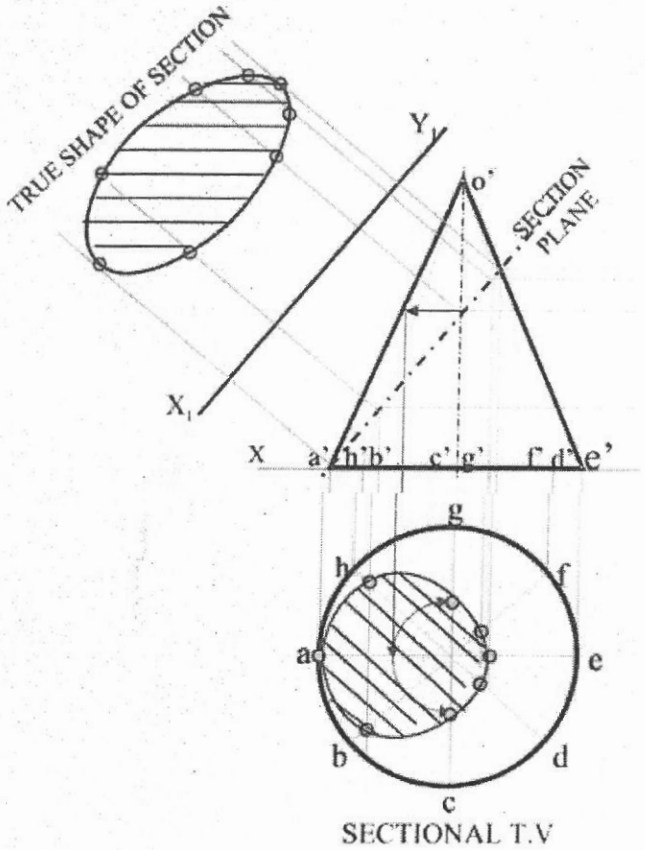
Q5)


ANSWER:
F.V ANGLE Θ = 53°
VP(FV)
HP(TV)
x
y
a'
b', d'
c'
a'
Θ
c_1'
d_1'
b_1'
a_1'
d
d_1
100
a
c
a_1
c_1
b_1
d_1
a_1
b
b_1
c_1
100
60
Rakesh

6)

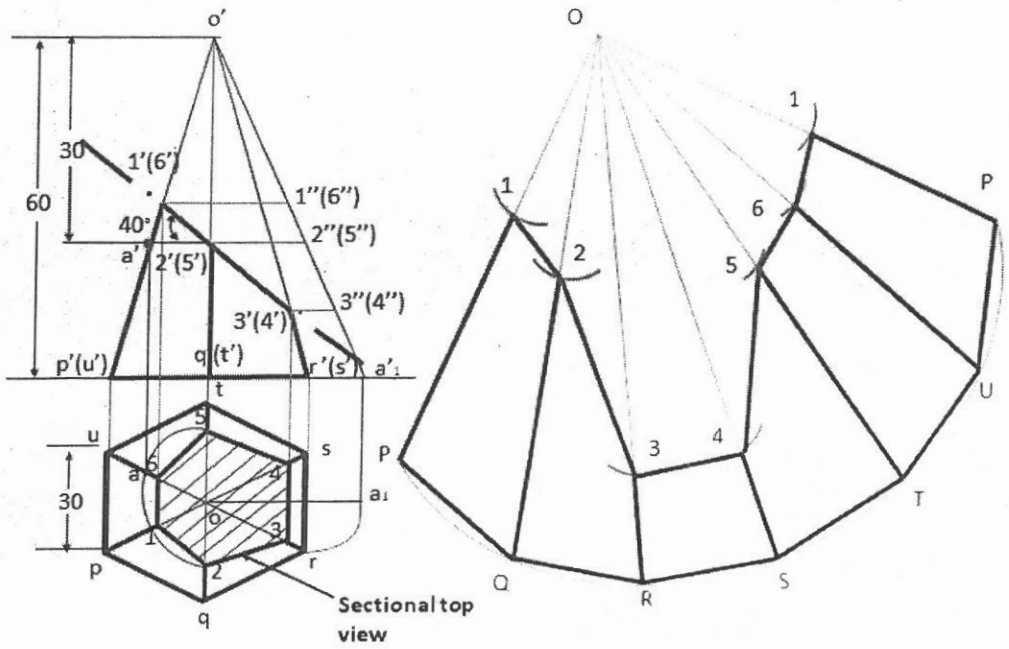


Q7)



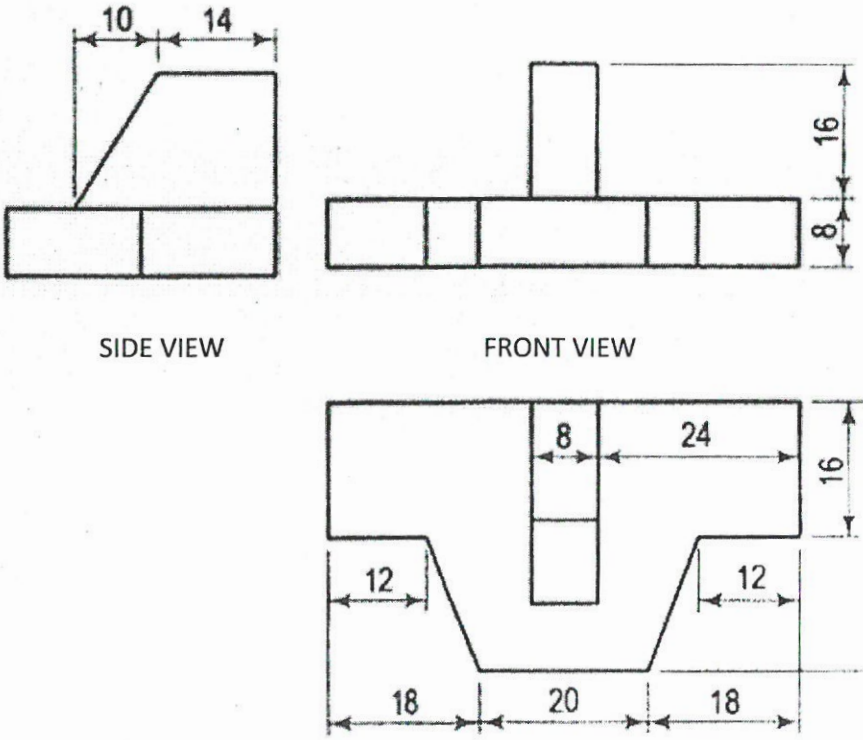
SECTIONAL T.V

Q8)

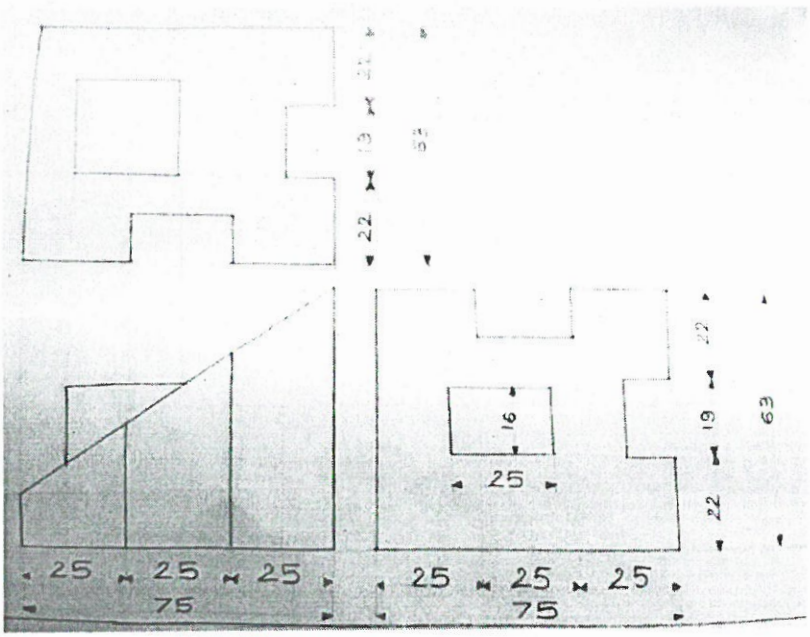


UNIT-5

Q9)


10
14
16
8
SIDE VIEW
FRONT VIEW
8
24
16
32
12
12
18
20
18
TOP VIEW

Q10)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