OR			
10	Draw the front view, top view and side view of the component shown in Fig. 2	L3	CO5	14 M

Fig. 2

Code: 23ES1104

I B.Tech - I Semester – Regular/Supplementary Examinations
DECEMBER 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
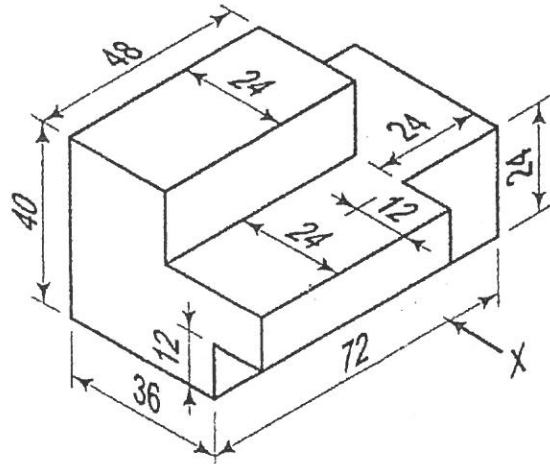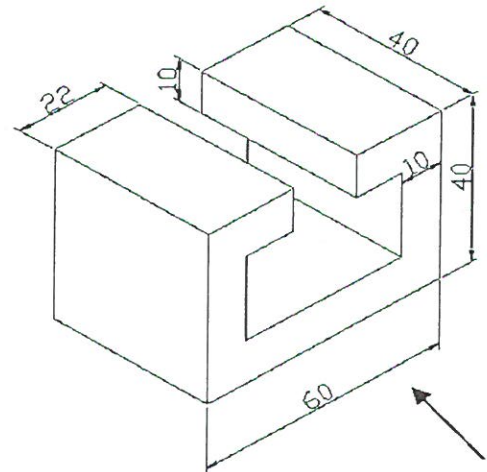
		BL	CO	Max. Marks
UNIT-I				
1	Draw an ellipse of eccentricity 3/5 when the distance between directrix and the focus is 64mm. Draw a normal and tangent to the curve at a distance of 40mm from the focus.	L3	CO1	14 M
OR				
2	A circle of 40mm diameter is rolling along straight path without slip. Trace a point O on the circumference, for one complete revolution. Name the curve. Draw a tangent and normal to the curve at a height of 30mm from the base.	L3	CO1	14 M
UNIT-II				
3	a)	Two pegs on a wall are 4m apart when measured along the ground. One peg is 1m and the other is 4m above the ground. Find the real distance between them. Use suitable scale.	L3	CO2	7 M

b)	A 90mm long line is parallel to HP and inclined at 45° to VP. One end of the line is 10mm above HP and 15mm behind VP. Draw the projections.	L3	CO2	7 M

OR

4	The top view of a 75mm long line AB measures 65mm, while the length of its front view is 50mm. Its one end A is in the H.P and 12 mm in front of the V.P. Draw the projections of AB and determine its inclinations with the H.P and the V.P.	L3	CO2	14 M

UNIT-III

5	A hexagonal plane of side 35mm is resting on one of its edges on VP which is inclined at 35° to HP. The plane is inclined at 40° to VP. Draw the projections.	L3	CO3	14 M

OR

6	A cone of 35mm base diameter and axis 75mm long is resting on one of its generators on HP. Draw the projections when the axis is parallel to VP.	L3	CO3	14 M

UNIT-IV

7	Draw the sectional top view and front view of a pentagonal pyramid of base edge 25mm and axis 60mm long, when it is cut by a plane passing through a point 20mm below the apex on the axis and is inclined at 45° to base. Show the true shape of the cut portion also. Assume the pyramid is lying on its base on HP such that one of its base edges is perpendicular to VP.	L3	CO4	14 M

OR

8	Draw the development of lateral surface of a cylinder when is cut by a plane passing through the midpoint of the axis and is inclined at 40° to axis. Take the base diameter of the cylinder as 55mm and axis 70mm long.	L3	CO4	14 M

UNIT-V

9	Draw the front view, top view, left side view and right side view of the component shown in Fig 1.	L3	CO5	14 M

Fig. 1

I B.Tech I Semester Regular Examinations Dec- 2024
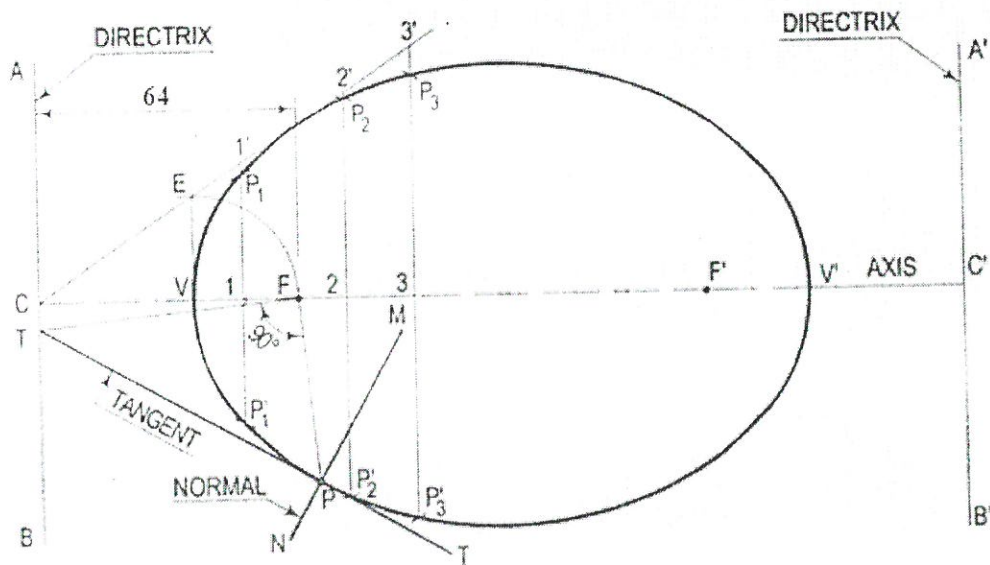## ENGINEERING GRAPHICS
(Common for IT,ME)
KEY AND SCHEME OF EVALUATION

SCHEME:

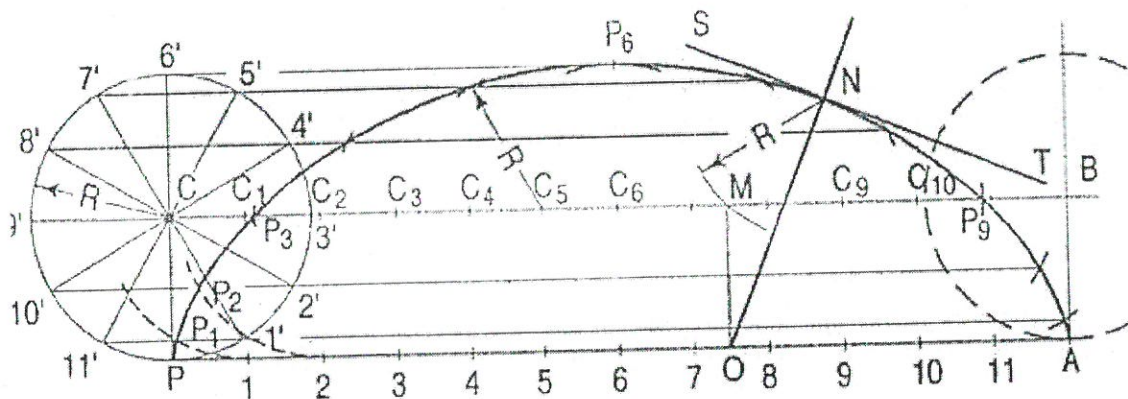| Q.No	Marks Division	Total Marks
1	Location of directrix and focus 4M+ Poins & Curve 8M+ Tangent &Normal (2M)	14
2	Directrix& Focus (4M) + points &Curve (8M) + Tangent &Normal (2M)	14
3a	Position of two pegs 4M + calculation of true length 3M	7
3b	Position of A 2M+Construction of F.V. & T.V. 5M	7
4	Position of A 2M+ Construction of (3F.V.'s, 3 T.V.'s)8M+True inclinations4M	14
5	Construction of (3F.V.'s, 3 T.V.'s) 12M + Dimension 2M	14
6	Construction of (2F.V.'s, 2 T.V.'s) 12M+ Dimension 2M	14
7	Construction of FV,Sectional top view 8M+true shape 4M+ Dimension 2M	14
8	Construction of FV,TV and development 4M+4M+4M+ Dimension 2M	14
9	Construction of FV,TV,SV 4M+4M+4M+ Dimension 2M	14
10	Construction of FV,TV,SV 4M+4M+4M+ Dimension 2M	14

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KEY

1) Construction of Ellipse :

DIRECTRIX

64

DIRECTRIX

3'
2'
P₃
P₂
1'
P₁
A'

E

V 1 F 2 3 F' V' AXIS C'

M

90°

TANGENT

P'₁

NORMAL

P'₂ P'₃

N T

B'

Divide
CF = 8 equal Parts

e = VF/VC = 3/5

Tangent & Normal
FP = 40mm

(OR)

2) Cycloid Construction:

P₆ S

7' 6' 5' N

8' 4' R

R C C₁ C₂ C₃ C₄ C₅ C₆ M C₉ C₁₀ T B

)' P₃ 3'

P₂ 2' P₉

10' P₂ 2'

11' P₁ L'

P 1 2 3 4 5 6 7 O 8 9 10 11 A

D = 40 mm

Tangent and Normal to the curve at a height of 30 mm from the Base

3) Projections of points and Straight Lines

a

$P_1 P_2 = 5m$
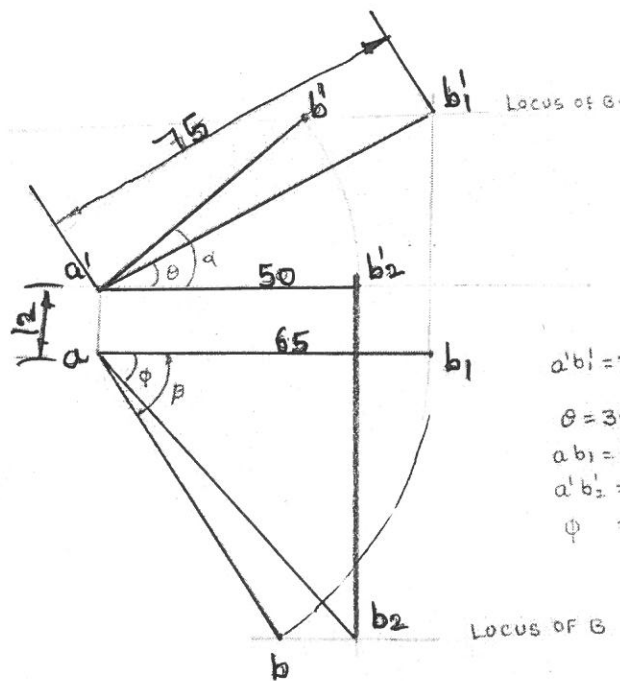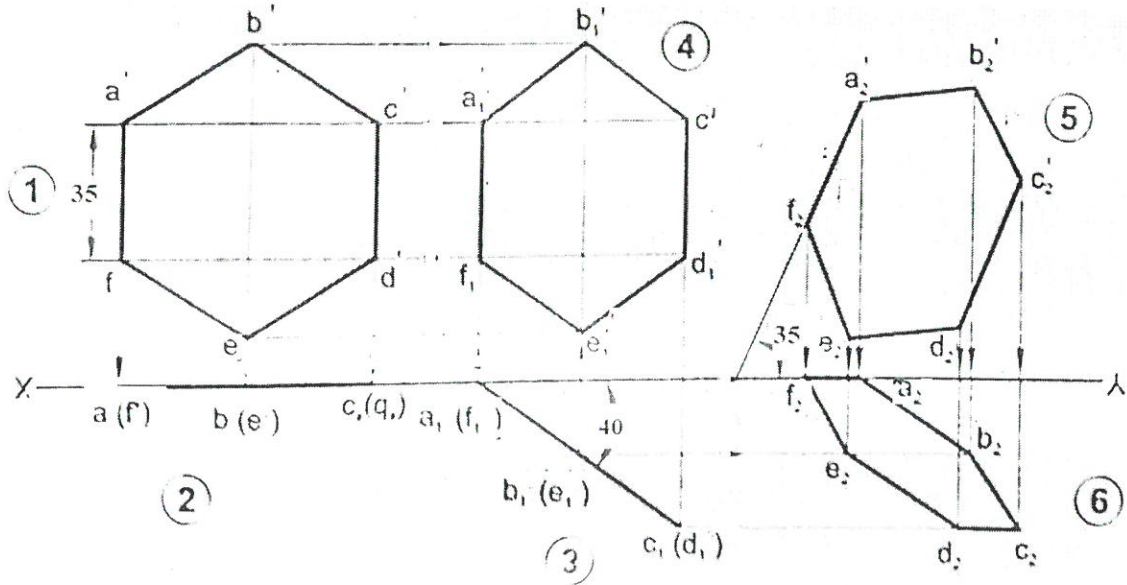
Scale : 1:100

b

$a'b' = FV$

$ab = TV$

$\phi = 45 \angle VP$

$11^e HP$

$a'b' \approx FV$
$ab = TV$
$\phi = 45 \angle VP$
$\theta = 0 \ 11^u HP$
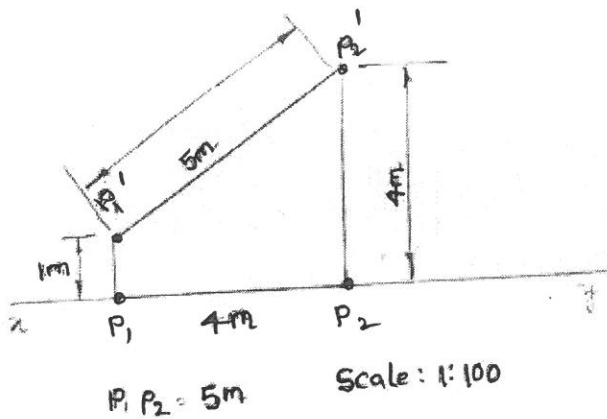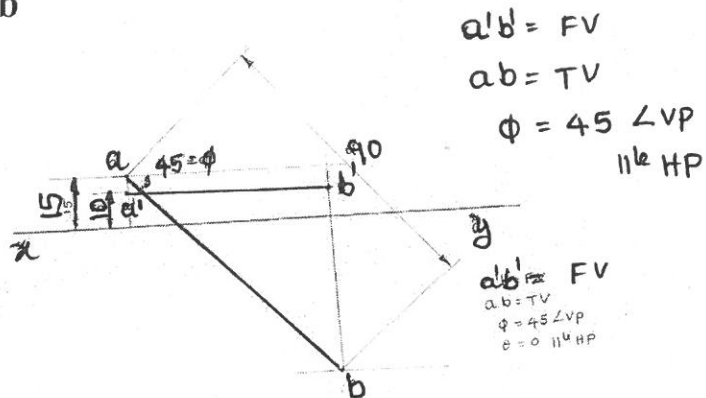
4. Projections of Straight Lines:

$a'b_1' = 75 \ TL$

$ab_1 = 65 \ TV$

$a'b_2' = 50 \ FV$

$\theta = 30° \quad Ans$

$\phi = 48° \quad Ans$

$a'b_1' = 75$

$\theta = 30° \quad Ans$
$ab_1 = 65$
$a'b_2' = 50$
$\phi = 48° \quad Ans$

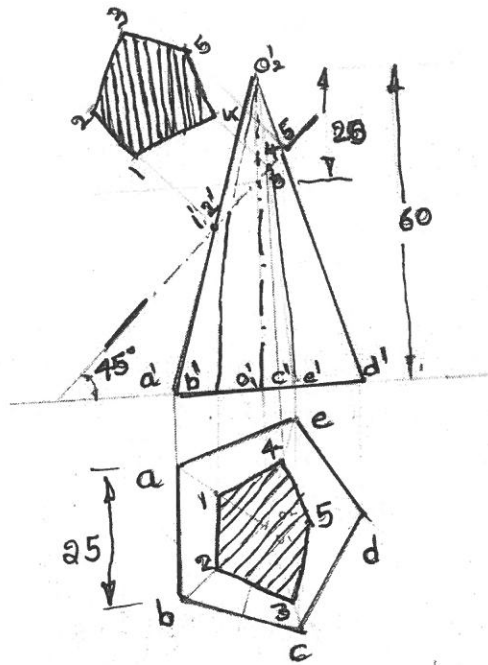## 5.Projections of Planes:

6) Projections of Solids:
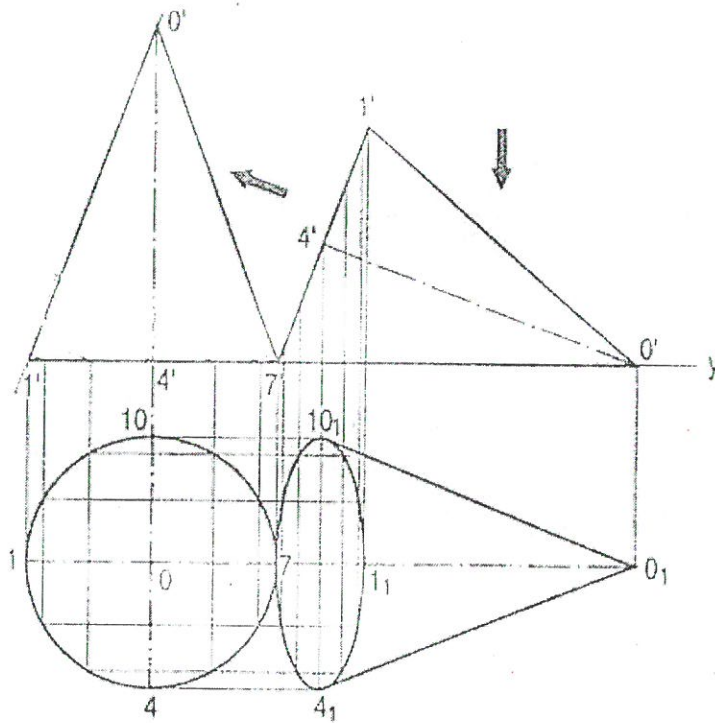
7) Sections of Solids:

8) Development of surfaces:

9) ORTHOGRAPHIC PROJECTIONS:

FRONT VIEW

SV

40

10

10

SV

22

10

40

40

40

SV

40

10

10

40

TOP VIEW

40

(OR)

10) ORTHOGRAPHIC PROJECTIONS:

FRONT VIEW

L.H.SIDE VIEW

40

24

72

36

12

48

24

12

TOP VIEW