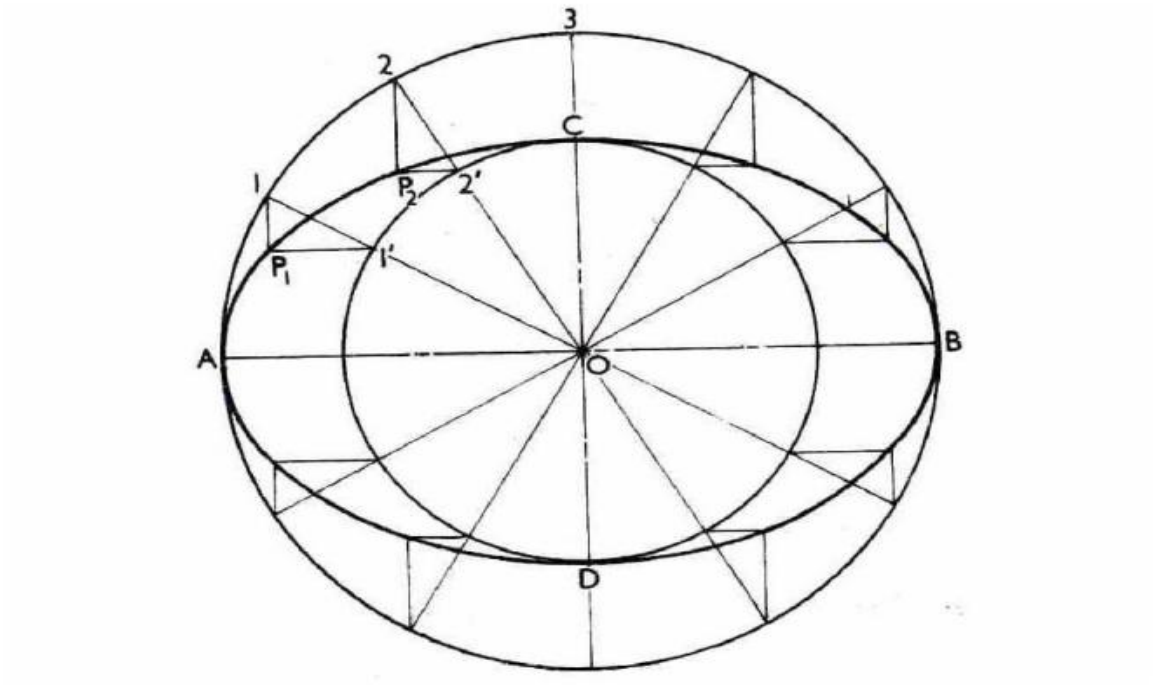
MODEL SOLUTION OF MID-SEMESTER EXAMINATION

TIME : 10-12.00 pm Date : 12.09.09

LG-1A, 1B, 2A, 2B and 3A

1. Use concentric circle method to draw an ellipse whose major and minor axis are 100 mm and 50 mm respectively.

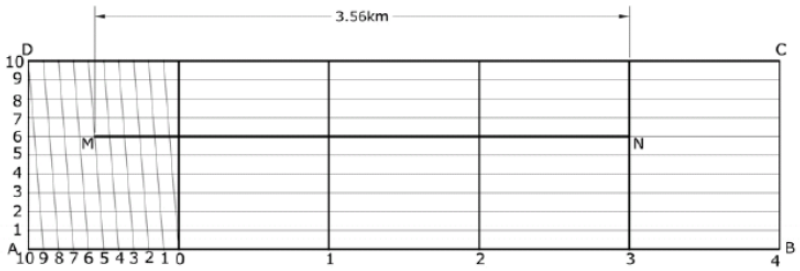


Question 2

(a) An area of 144 cm^2 on a map represents an area of 9 km^2 on the field. Show that R.F. of the scale for this map is 1/25000 (If this is taught then we can think of not giving the values). Based on this RF, draw a diagonal scale to show kilometers, hectometers and decameters and to measure up to 5 kilometers. Indicate on the scale a distance of 3.56km. (Note: 1km = 10 hectometer = 100 decameter). (13+2)

Solution

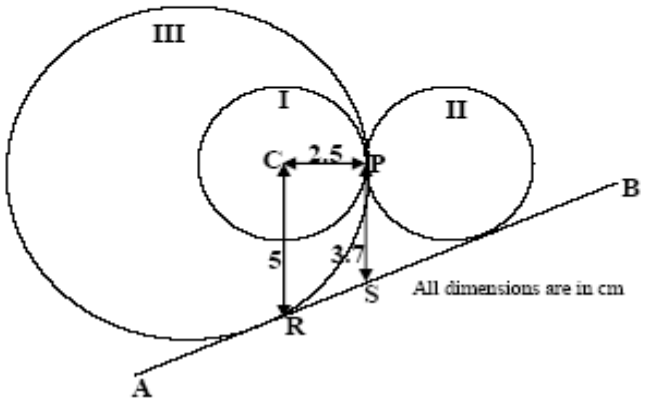
Decameter



Hectometer **Kilometer**

RF=1/25000

(b) Given a circle 'I' with centre 'C' and of radius 2.5 cm with a point P on it. Points R and S are vertically below C and P at a depth of 5 cm and 3.7 cm, respectively. The line R and S when extended on both sides give line AB. Draw circles (II and III) on both sides of circle I touching point 'P' and line AB. (8+2)



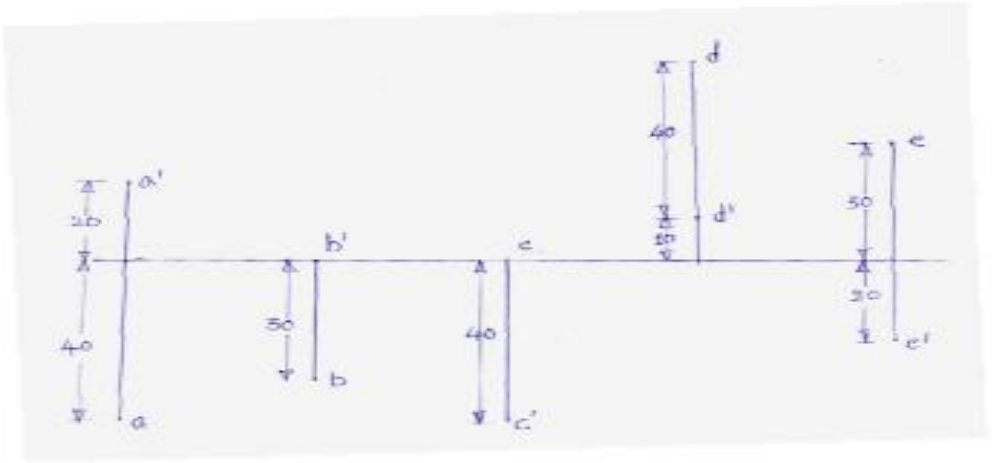
Solution

a) Circle I is constructed and point P marked on it. A tangent is drawn at P to meet AB at S. (1)

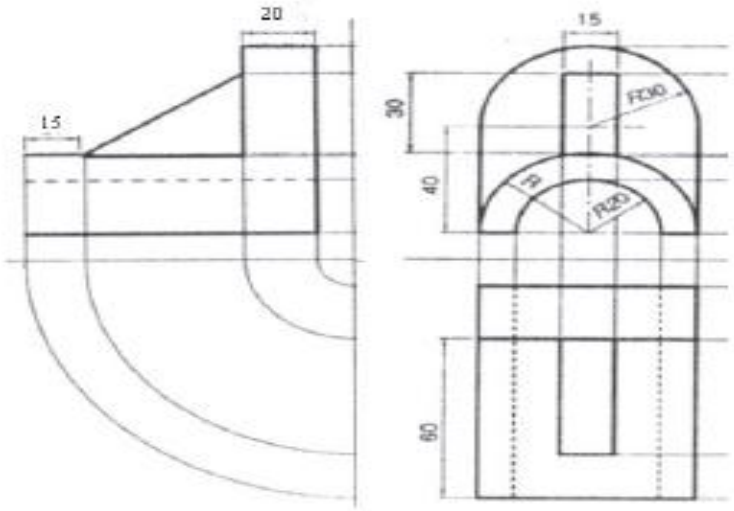
b) Draw angular bisector for angle PSB and PSA. These angular bisectors meet CP extended on both sides at O and O'. (5)

c) With centres O, O' and radius equal to OP and O'P draw the required circles II and III. (2)

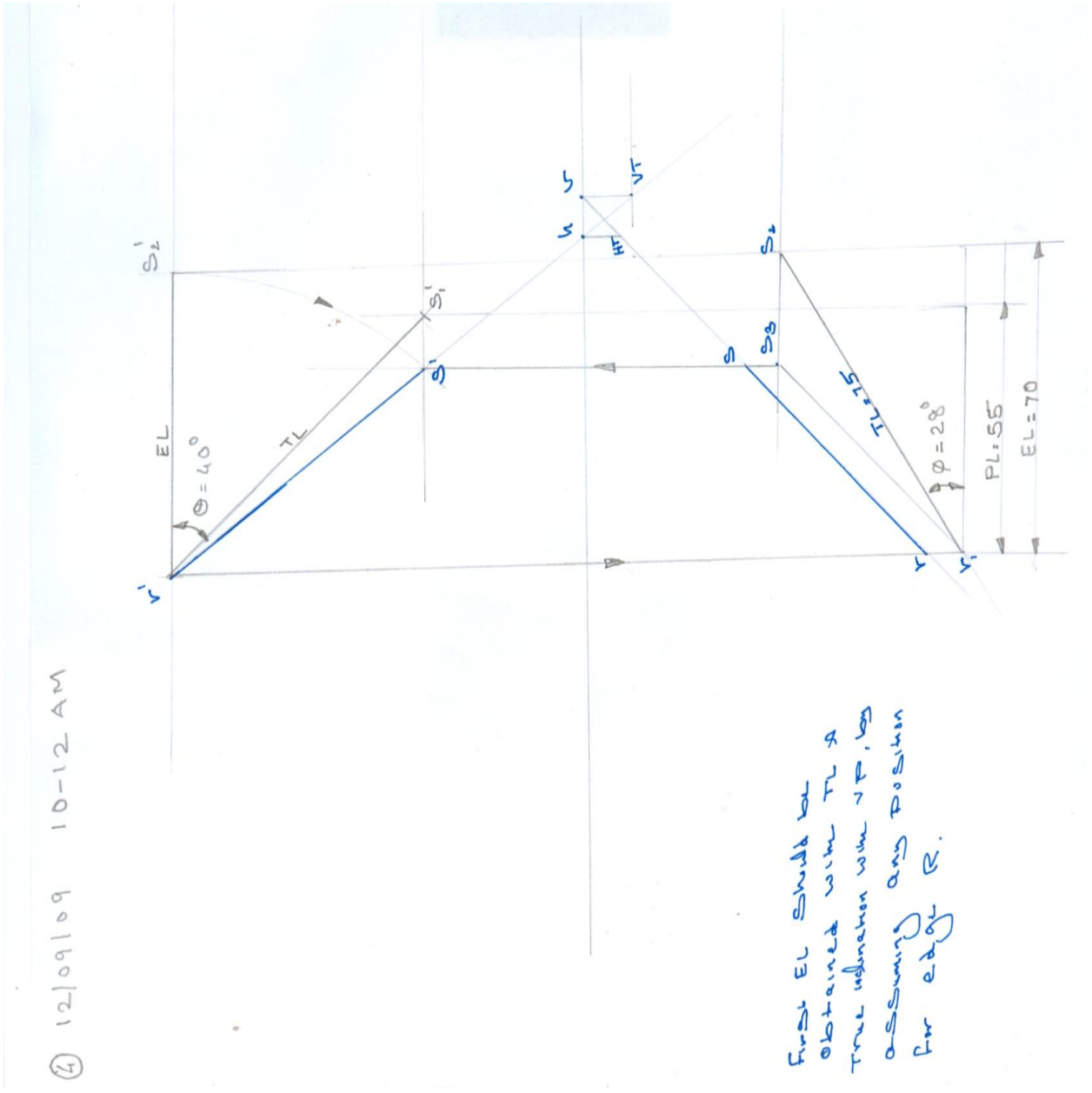
Q. 3a



Q. 3b



Q.4



(4) 12/09/09 10-12 AM

First EL should be obtained using TL & true inclination with VP, then assuming any position for edge P.

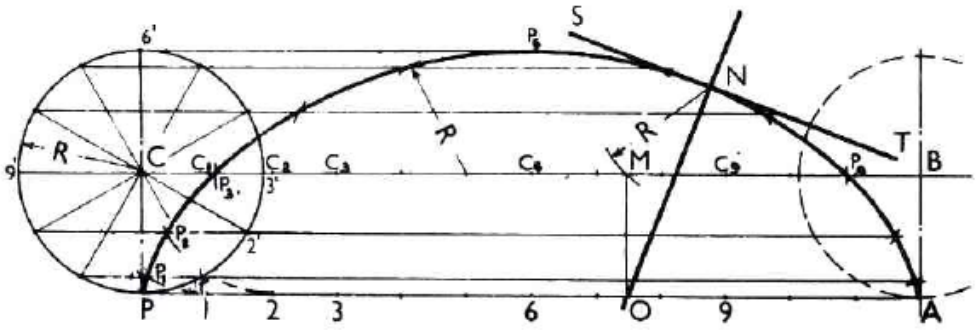
MODEL SOLUTION OF MID-SEMESTER EXAMINATION

TIME : 2-4.00 pm Date : 12.09.09

LG-3B, 4A, 4B, 5A and 5B

Q.1

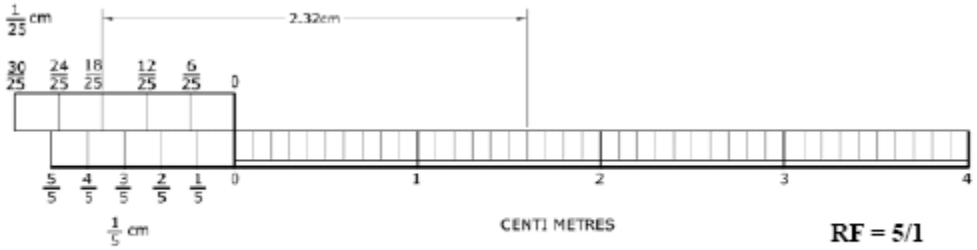
2. A circle of 44 mm diameter rolls along a straight line without slipping. Draw the curve traced out by a point P on the circumference, for one complete revolution of the circle. Name the curve. Draw a tangent to the curve at a point on it 34 mm from the line.



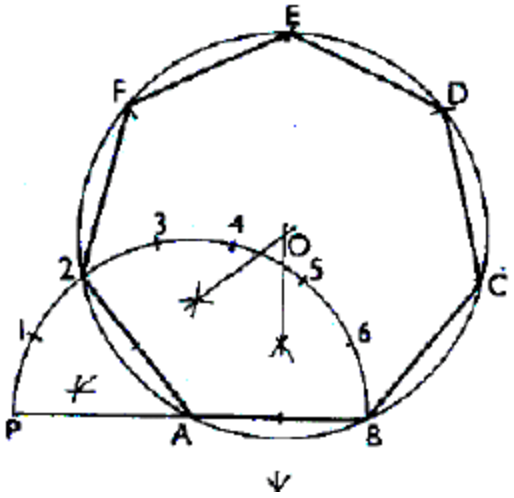
Question 2:

(a) Draw a vernier scale of R.F=5/1 to read 1/5cm and 1/25 cm and to measure up to 5cm. Mark on the scale a distance of 2.32 cm. (13+2)

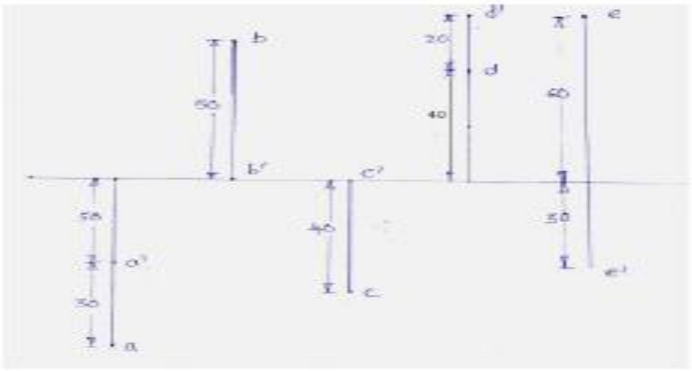
Solution:(a)



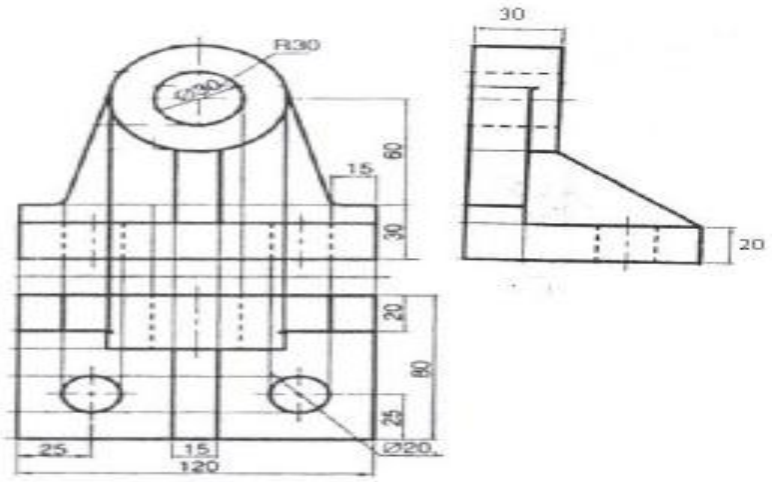
(b) Draw a circumscribed regular hexagon of side length 20 cm. (8+2)



Q. 3a



Q. 3b

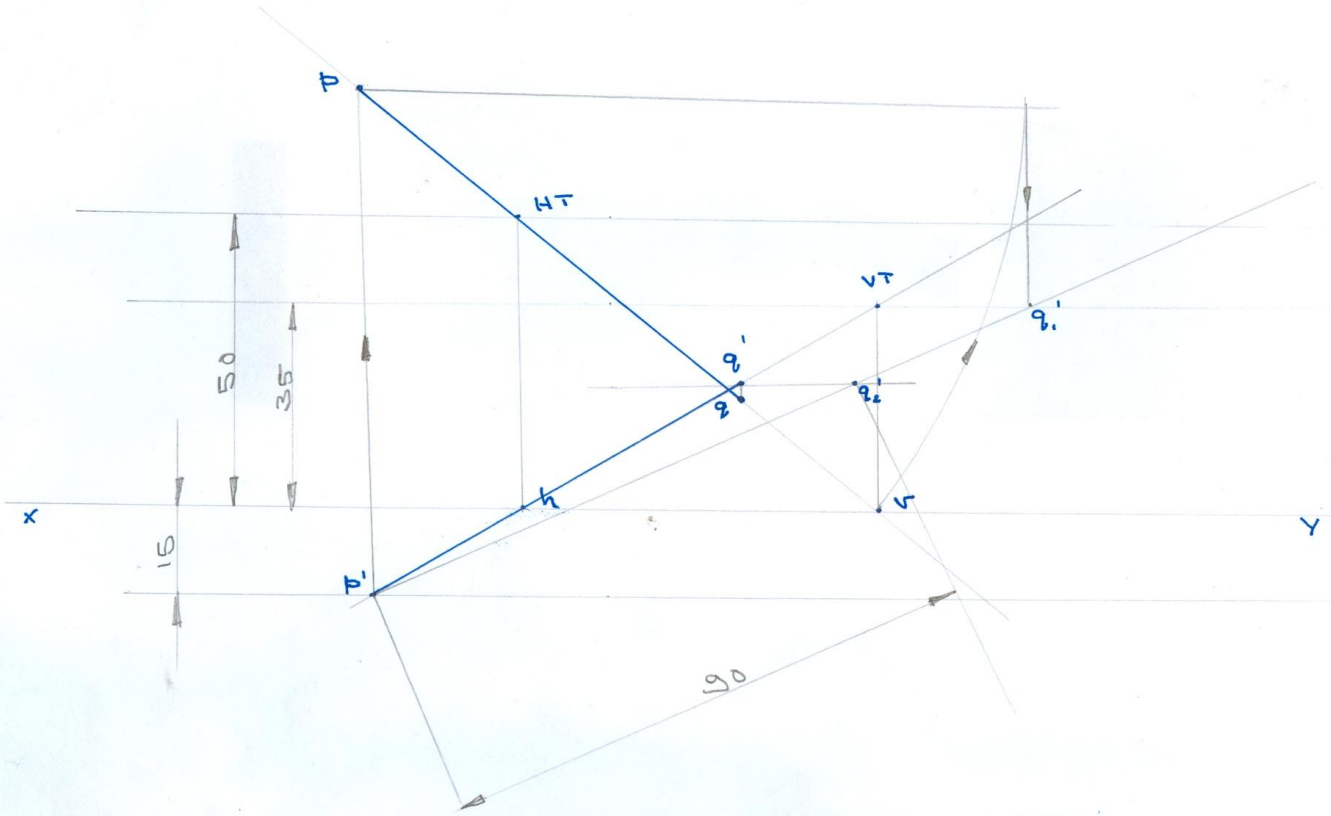


Q.4

(A) Solution Possible, Line PQ is of 100 mm long

(4) 12/9/09 2-4 PM

Solution considering line PQ of 90 mm length, but edge Q' found to lies in 2nd quadrant. this can be known only at the last stage. Hence those who have attempted as below would be awarded full marks.



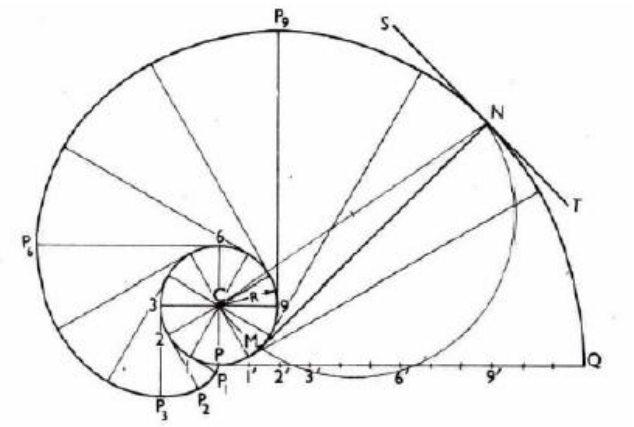
MODEL SOLUTION OF MID-SEMESTER EXAMINATION

TIME : 10-12.00 pm Date : 13.09.09

LG-6A, 6B, 7A, 7B and 8A

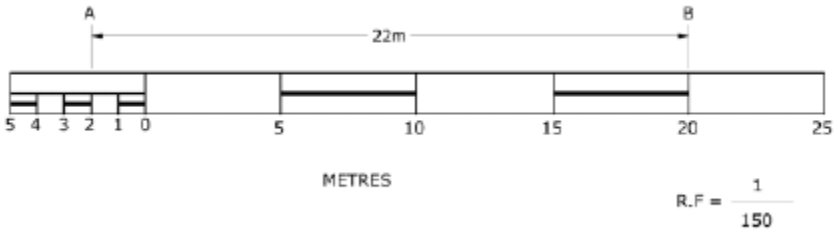
Q.1

3. Draw an involute of a circle of 40 mm diameter. Draw a normal and tangent to it at a point 100 mm from the centre of the circle.

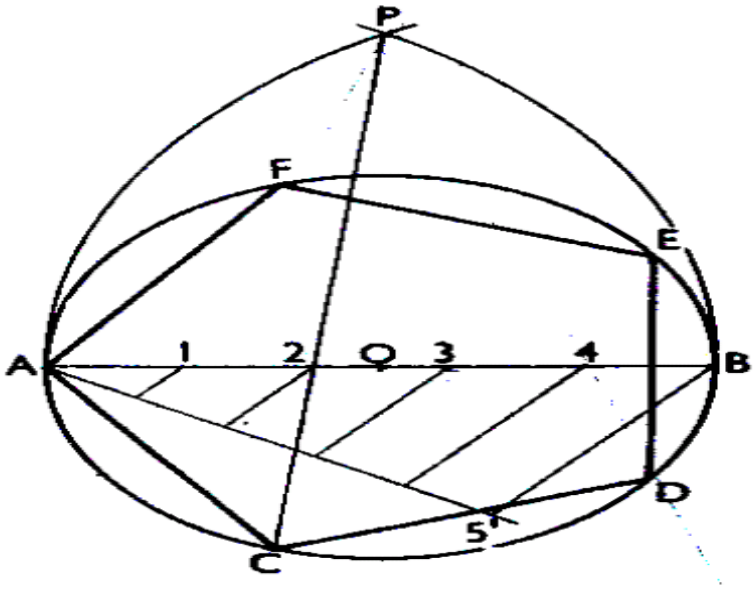


Q. 2(a)

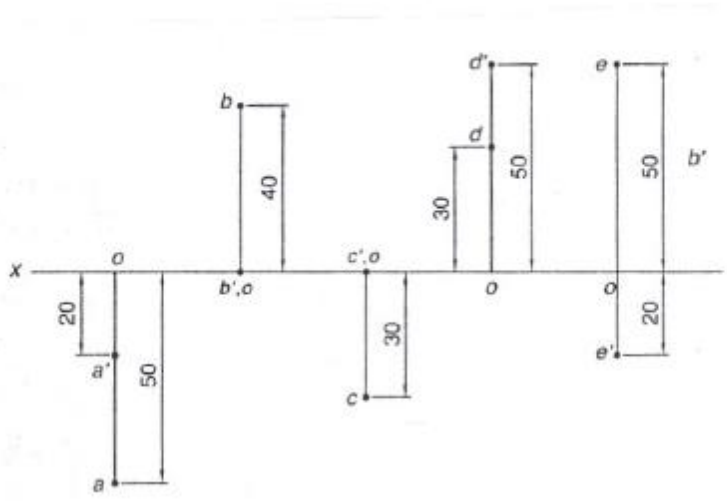
A 3 cm long line represents a length of 4.5 metres. Extend this line to measure up to 30 metres and show on it units of metre and 5 metre. Show the length of 22 metres on this line.



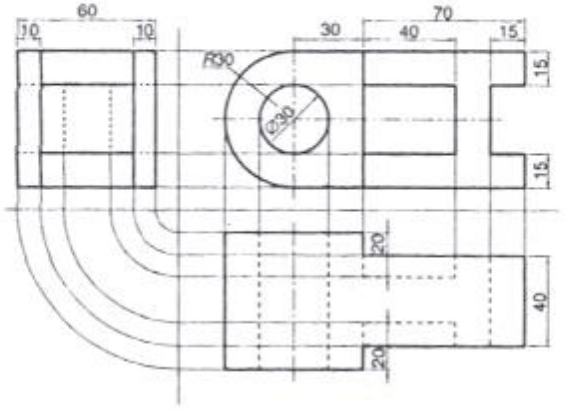
(b) Inscribe a regular pentagon of side length 10 cm inside a circle. (8+2)



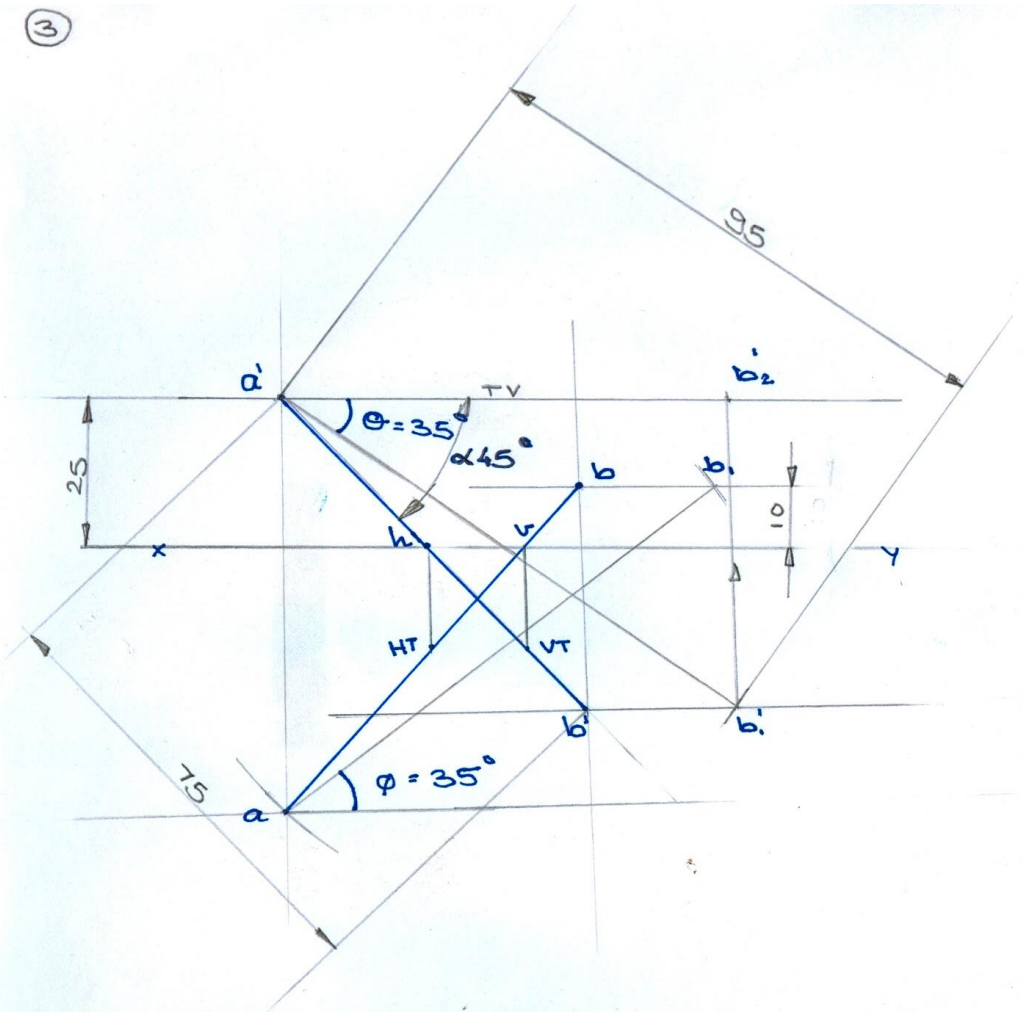
Q. 3a


X
o
b
40
b',o
c',o
c
30
d'
d
30
50
o
e
50
b'
o
20
e'
20
20
a'
50
a

Q. 3b


60
10
10
30
70
40
15
R30
Ø30
15
15
20
40
20

(3)



α : Apparent inclination with horizontal Plane

θ : True inclination with horizontal Plane

φ : True inclination with vertical Plane.

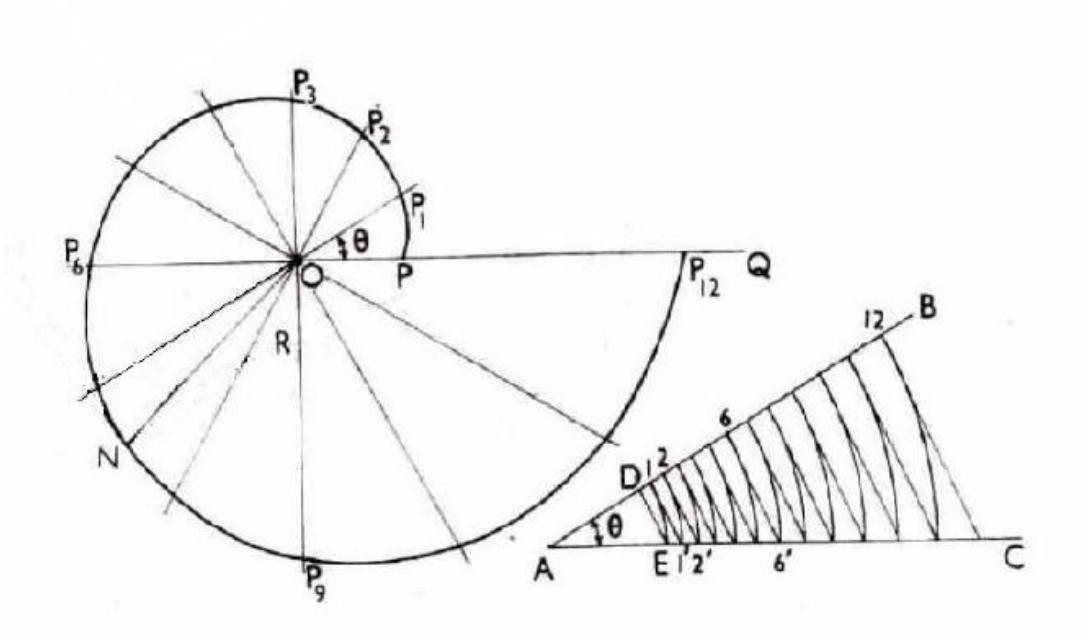
MODEL SOLUTION OF MID-SEMESTER EXAMINATION

TIME : 2.00-4.00 pm Date : 13.09.09

LG-8B, 9A, 9B, 10A and 10B

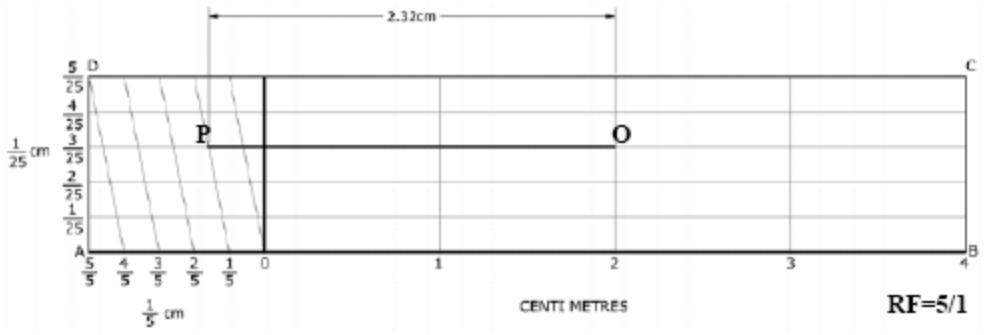
Q.1

4. Draw a logarithmic spiral of one convolution, which has the shortest radius 1 cm. The ratio of the lengths of radius vectors is $\frac{10}{9}$ and the enclosed angle is $30°$.

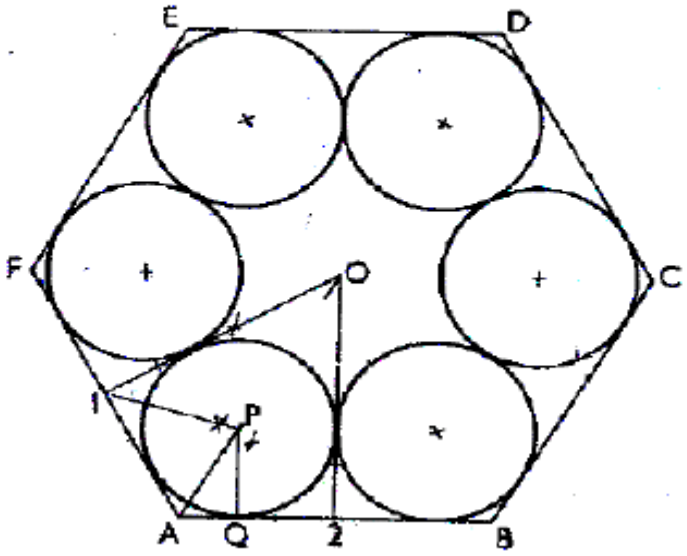


Q.2

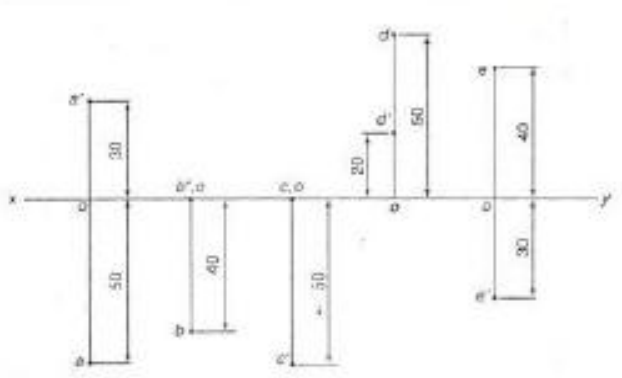
(a) Draw a diagonal scale of R.F=5/1 to read 1/5cm and 1/25 cm and to measure up to 5cm. Mark on the scale a distance of 2.32 cm. (13+2)



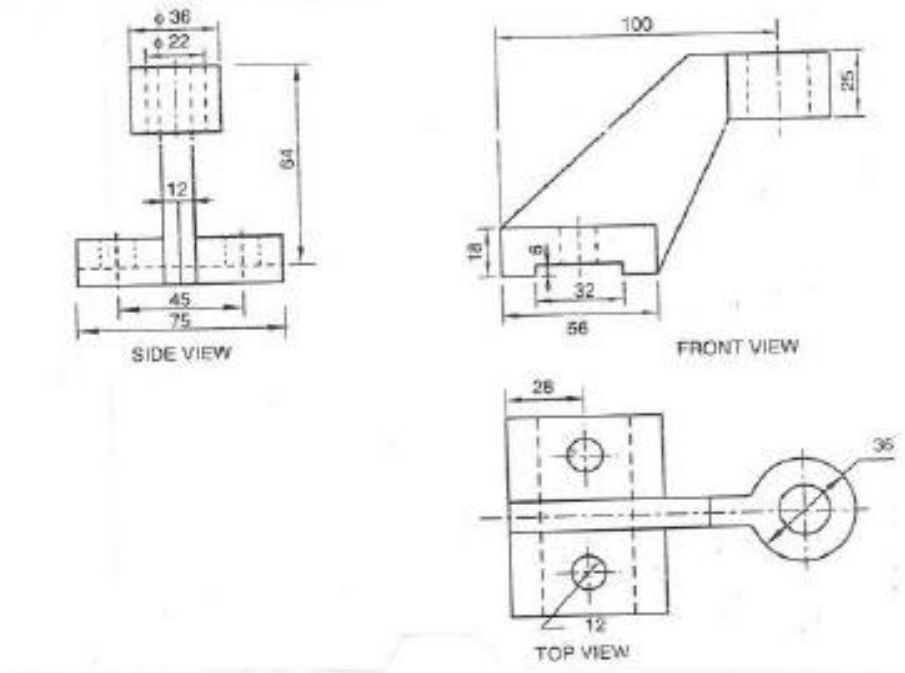
(b) Inside a regular hexagon of side length 24 cm, draw the same number of equal circles as the side of the polygon, each circle touching two adjacent sides of the hexagon and two of the other circles. (8+2)



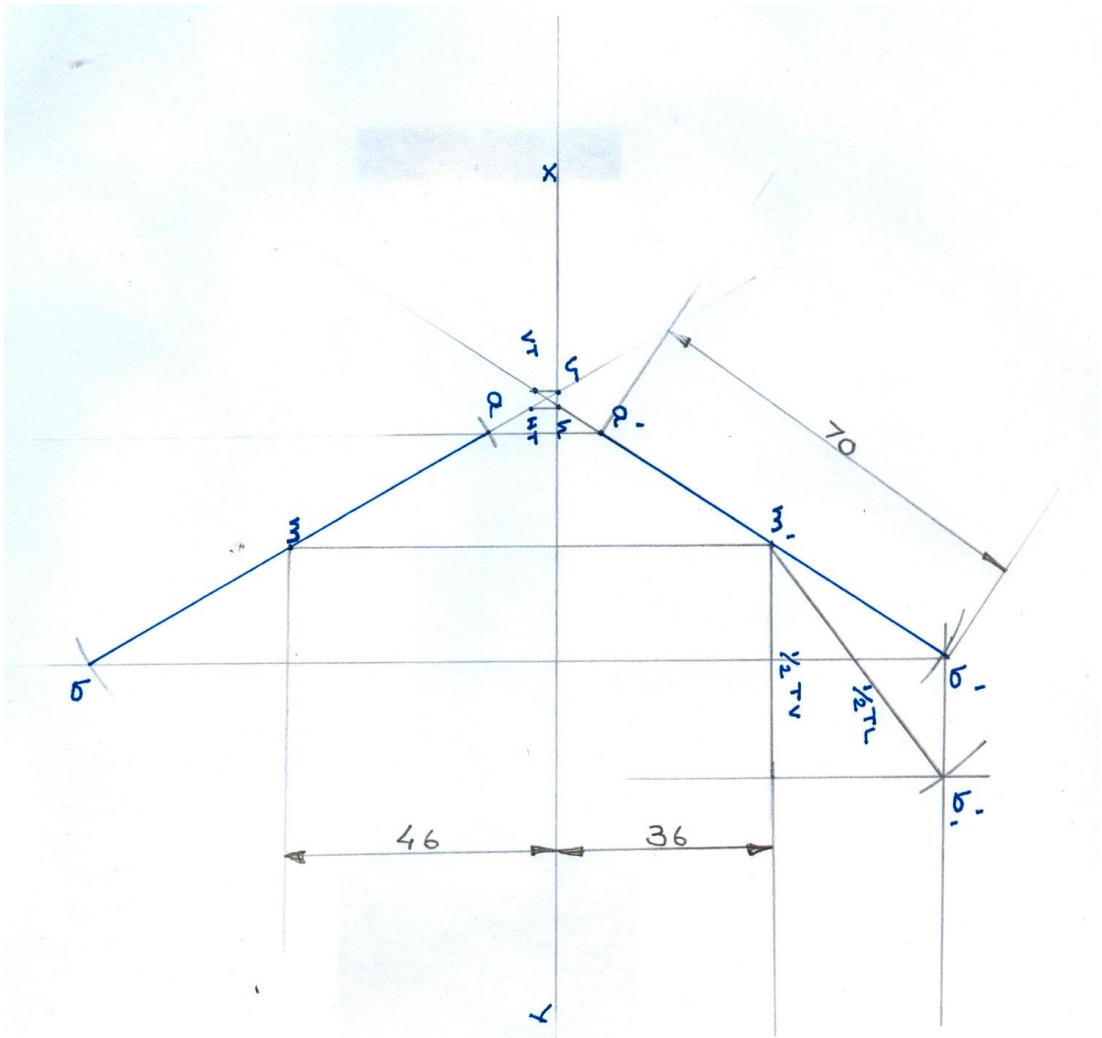
Q. 3a


x
y
30
50
40
50
20
50
40
30

Q. 3 b


ϕ 36
ϕ 22
64
12
45
75
SIDE VIEW
100
25
18
6
32
56
FRONT VIEW
28
36
12
TOP VIEW

Q.4



TL: True length
TV: Top view
لمعرفة

Midpoint of
line remains
midpoint in
projection also.