Name.....

Reg. No.....

COMBINED FIRST AND SECOND SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, MAY 2015

EN 14 108 (B) – ENGINEERING GRAPHICS (B)

Time: Three Hours Maximum: 100 Marks

*Answer any **three** questions from Part A and any **two** questions from part B*
All questions carry equal marks

Part A

1. (a) A line PQ 100 mm long has its end P in first quadrant, 25 mm from both HP and VP and the other end Q in second quadrant, 50 mm from both HP and VP. Draw its projections and determine its traces and inclinations to HP and VP.

OR

(b) A thin rectangular plate of sides 60 mm X 30 mm has its shorter side in the VP and inclined at 30^0 to the HP. Project its top view if its front view is a square of 30 mm long sides.

2. (a) A square pyramid side of base 50 mm and axis 70 mm long has one of its slant edges in the VP and the edge of its base contained by that slant edge makes an angle of 30^0 with the HP. Draw the projections of the pyramid.

OR

(b) A cone diameter of base 60 mm and height 75 mm is resting on one of its generators on HP with axis parallel to VP. It is cut by a sectional plane passing through a point on the axis 50 mm away from the apex. Draw the elevation and sectional plan.

3. (a) A lamp shade is formed by cutting a cone of 72 mm diameter and 87 mm height by a horizontal plane at a distance of 36 mm from the apex and another plane inclined at 30^0 to the HP passing through one extremity of the base. Draw the development of the shade.

OR

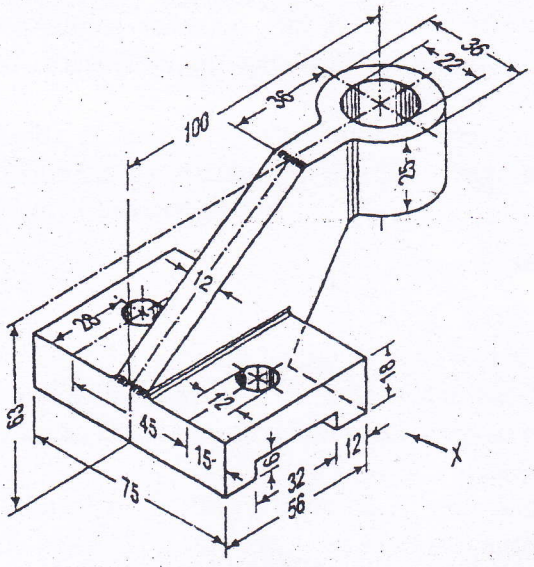
(b) A rectangular slab 75 mm X 50 mm X 20 mm is surmounted by a cube of 40 mm side. On the top of the cube rests a square pyramid of height 40 mm and base side 25 mm. the axes of the solids are on the same straight line. Draw the isometric view of the solid.

Part B

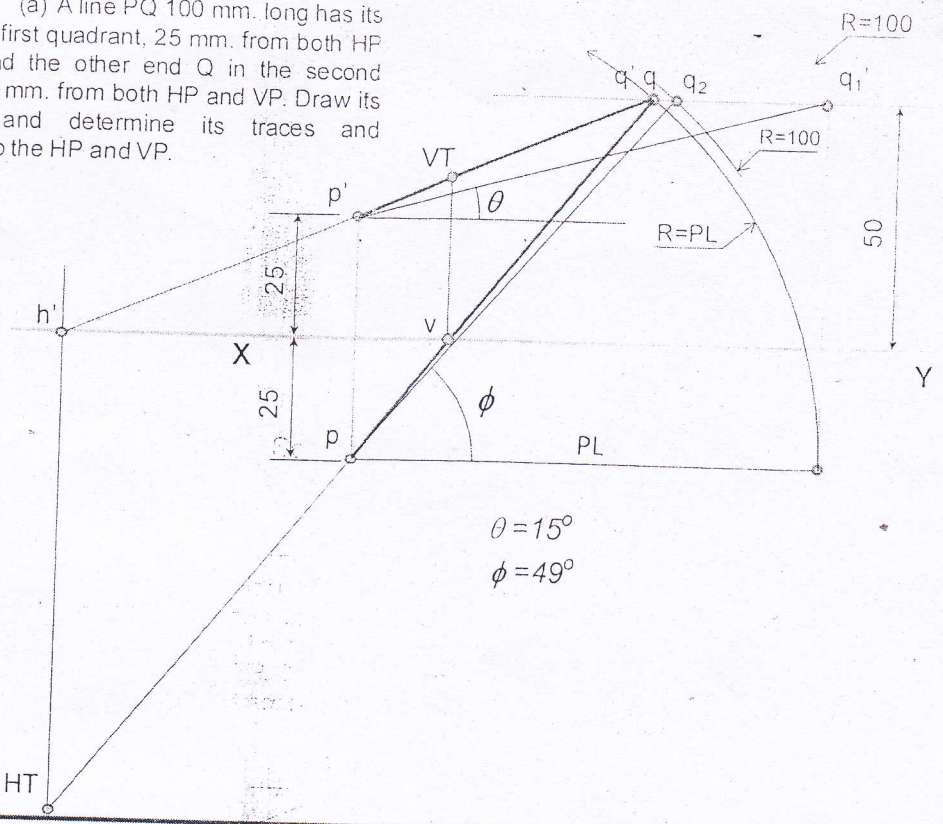
4. (a) Draw the perspective view of a hexagonal pyramid of base 30 mm and height 70 mm. the nearest point is at a distance of 120 mm from the PP, 50 mm above the ground plane and 80 mm to the right of the solid.

   (b) Draw the dimensional orthographic views (all the three) of the object shown in figure.

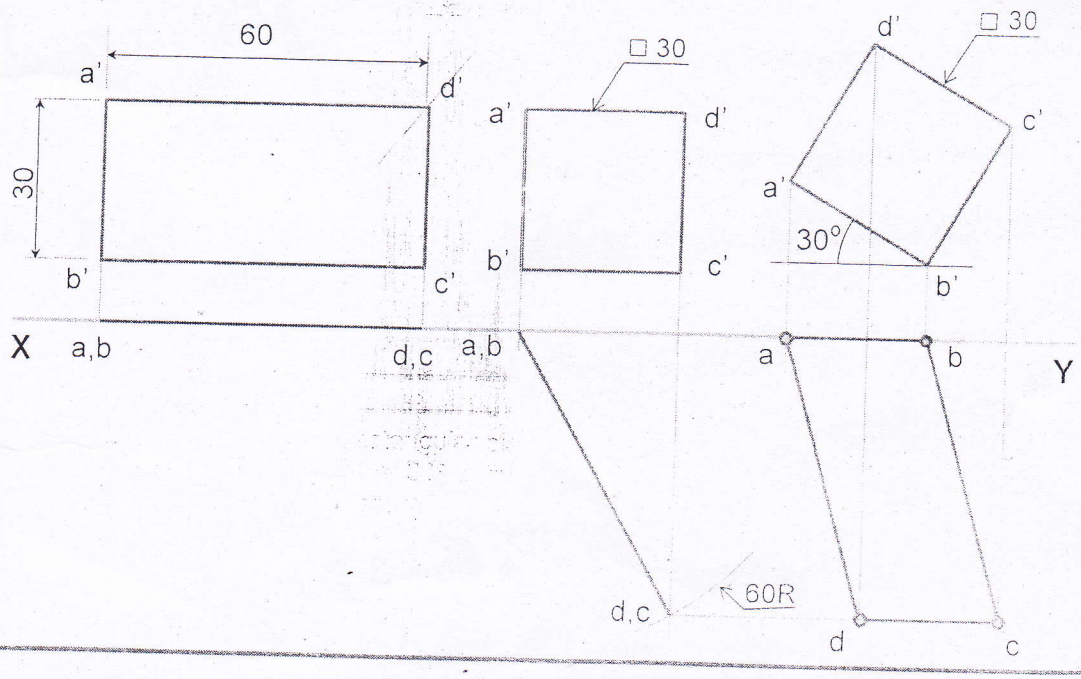
   (c) Draw three views of a hexagonal headed bolt of size M24. The length of the bolt is 80 mm and thread length is 54 mm.



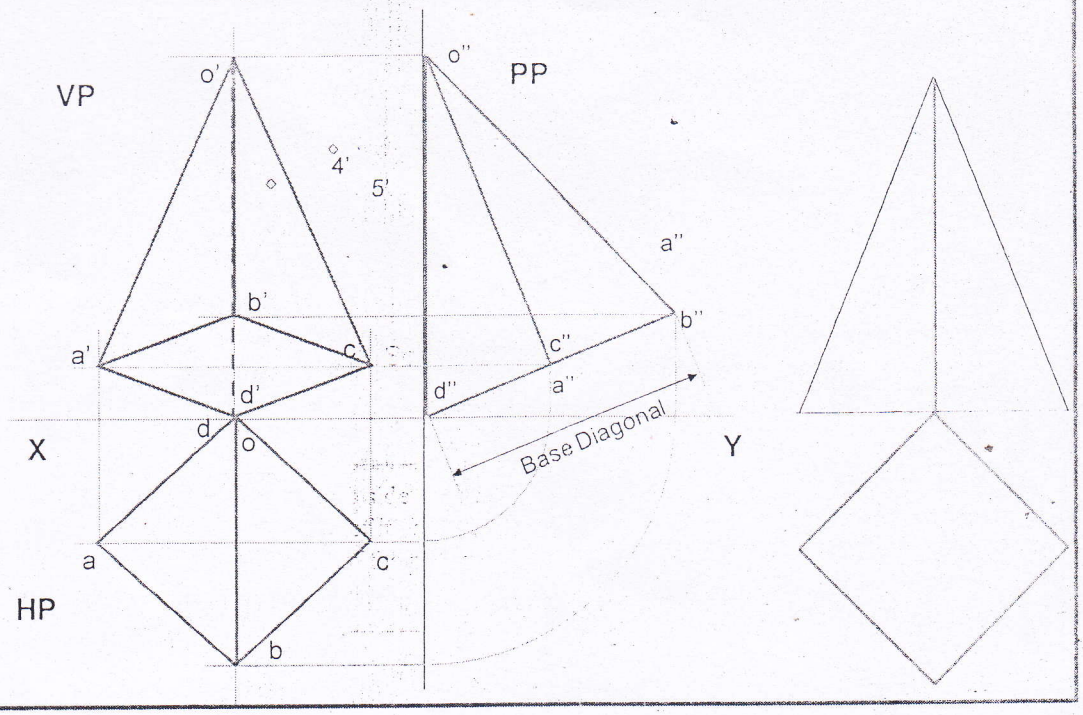
1. (a) A line PQ 100 mm. long has its and P in the first quadrant, 25 mm. from both HP and VP and the other end Q in the second quadrant, 50 mm. from both HP and VP. Draw its projections and determine its traces and inclinations to the HP and VP.



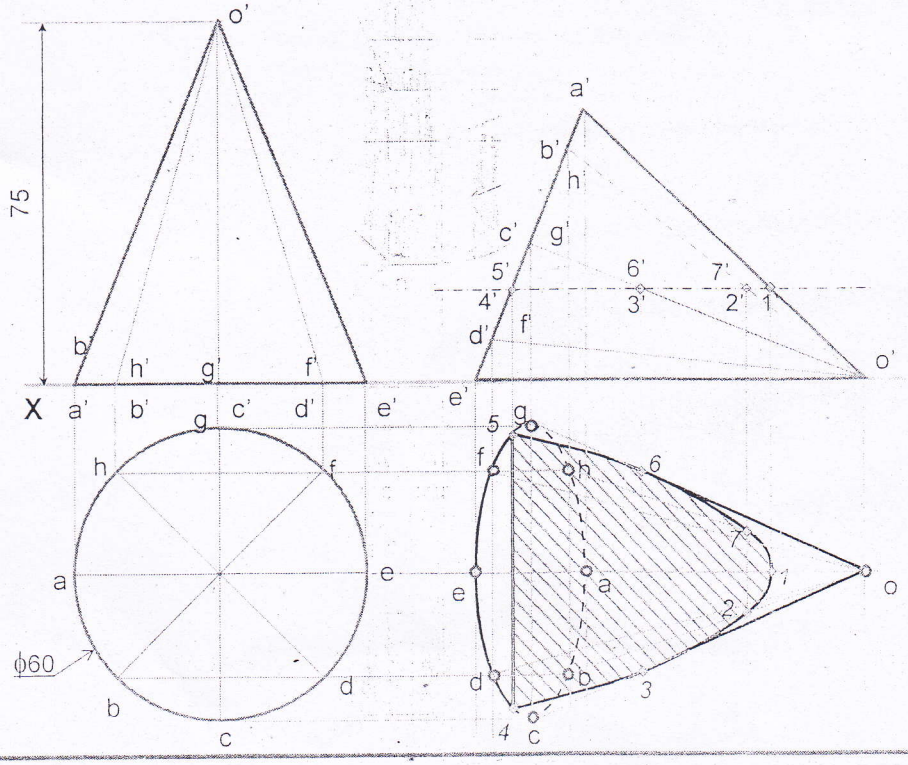
1.(b) A thin rectangular plate of sides 60 mm. x 30 mm has its shorter side in the VP and inclined at 30° to the H.P. Project its top view if its front view is a square of 30 mm. long sides.



2. (a) A square pyramid side of base 50 mm. and axis 70 mm. long, has one of its slant edges in the VP and the edge of its base contained by that slant edge makes an angle of 30 with the HP. Draw the projections of the pyramid.



2 (b) A cone diameter of base 60 mm. and height 75 mm. is resting on one of its generators on HP with axis parallel to VP. It is cut by a sectional plane passing through a point on the axis 50 mm. away from the apex. Draw the elevation and sectional plan.



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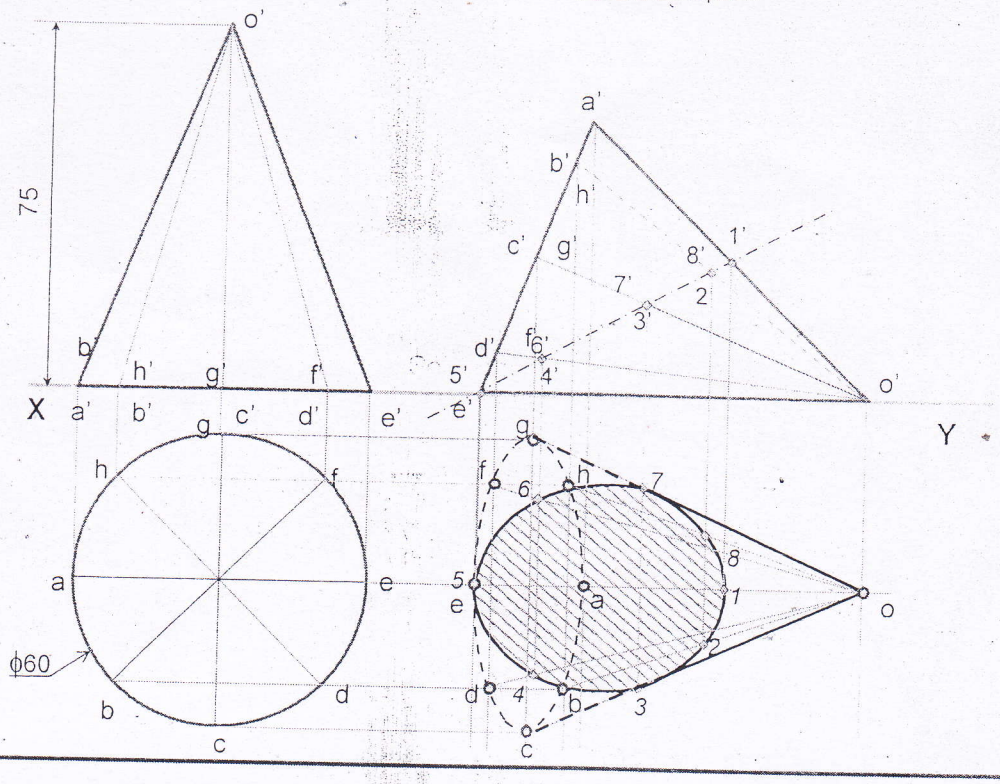
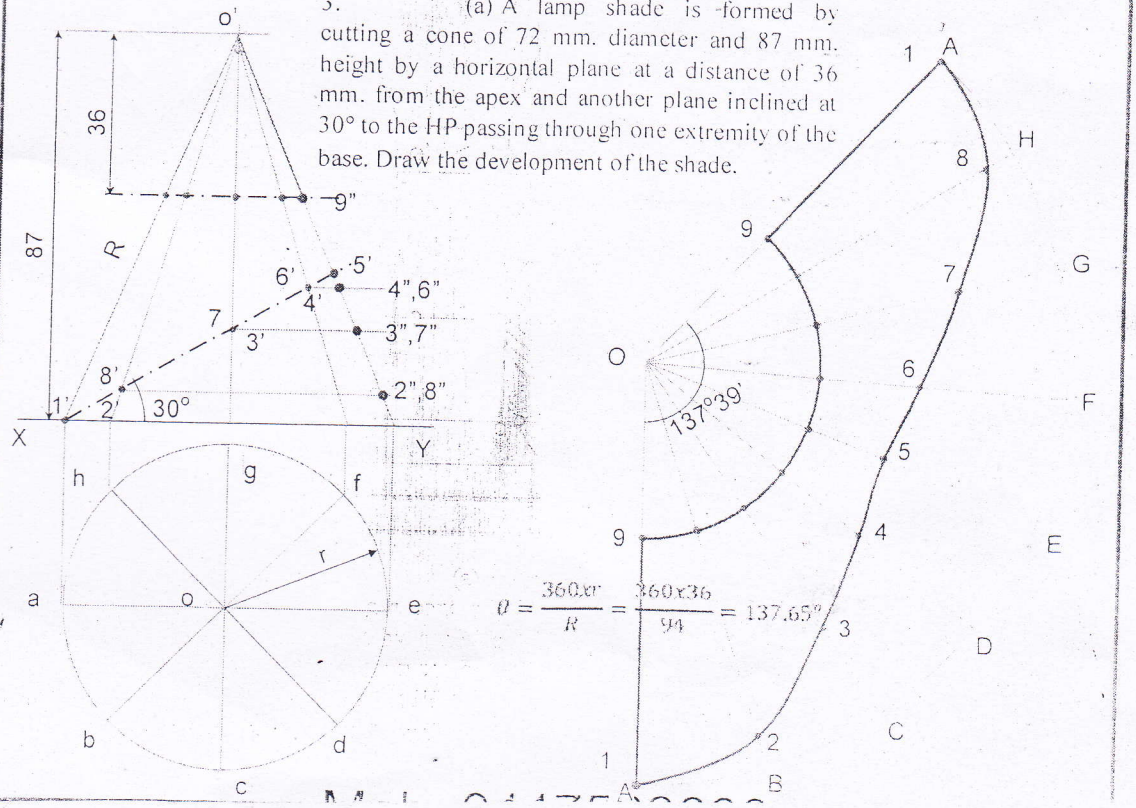
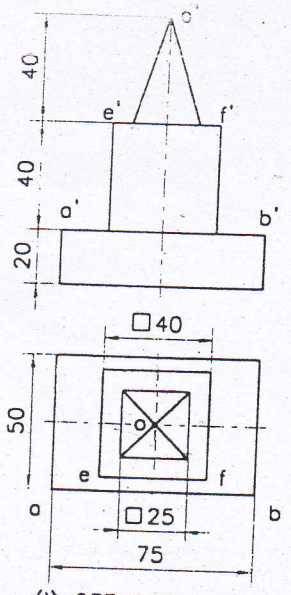


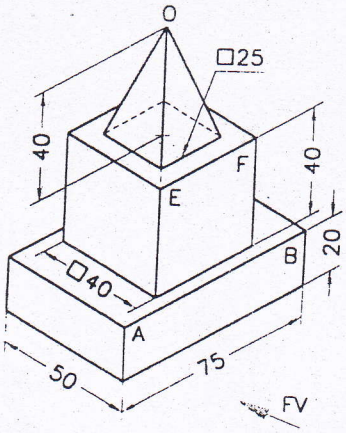
3. (a) A lamp shade is formed by cutting a cone of 72 mm. diameter and 87 mm. height by a horizontal plane at a distance of 36 mm. from the apex and another plane inclined at 30° to the HP passing through one extremity of the base. Draw the development of the shade.



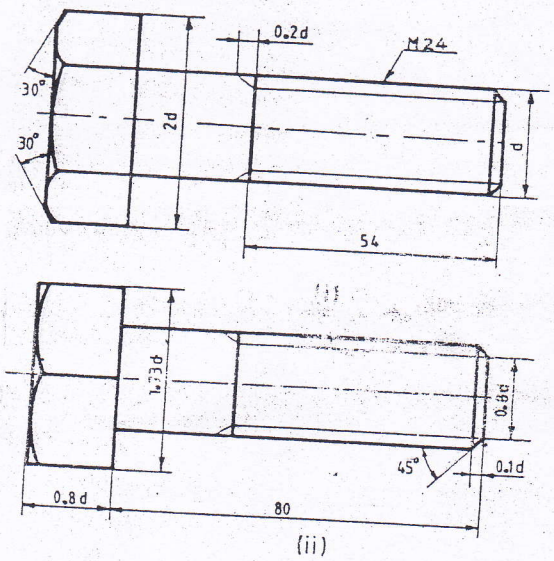
$$\theta = \frac{360xr}{R} = \frac{360x36}{94} = 137.65°$$

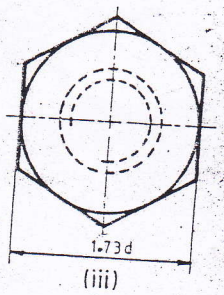
3.b


o'
40
e'
f'
40
a'
b'
20
□40
50
o
e
f
a
b
□25
75
(i) ORTHOGRAPHIC


O
□25
40
F
40
E
B
20
□40
A
50
75
FV
(ii) ISOMETRIC VIEW

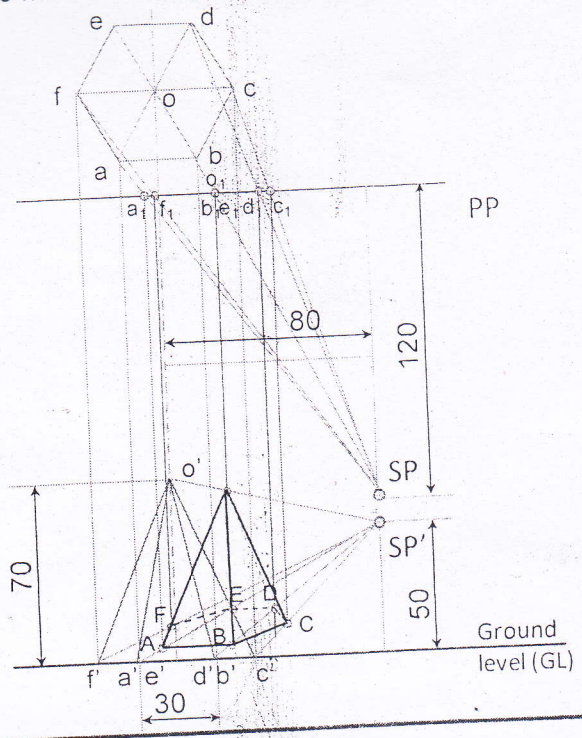
4.C


0.2d
M24
30°
30°
2d
d
54
1.73d
0.8d
45°
0.1d
0.8d
80
(ii)

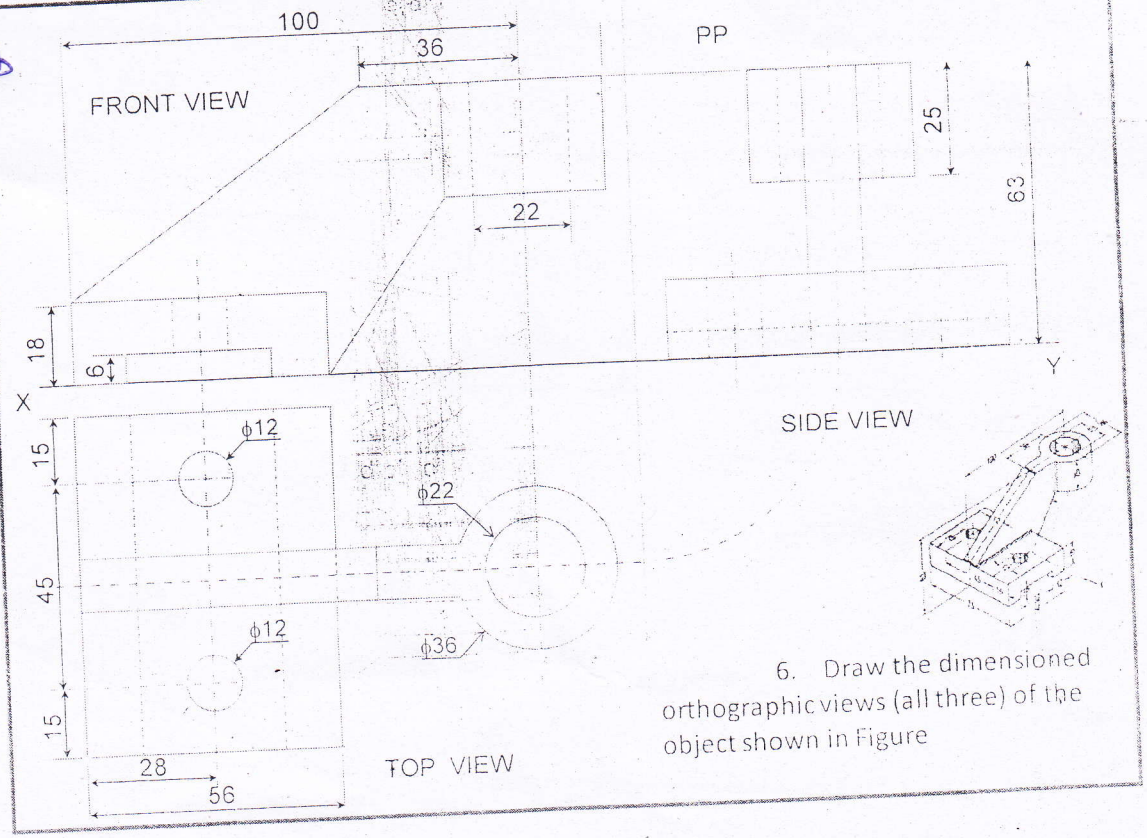

1.73d
(iii)

d = 24

4a. Draw the perspective view of a hexagonal pyramid of base 30 mm. and height 70 mm. The nearest point is at a distance of 120 mm. from the PP, 50 mm. above the ground and 80 mm. to the right of the apex of the solid.



4b



6. Draw the dimensioned orthographic views (all three) of the object shown in Figure