UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2018

Course: MECH1001 - Engineering Graphics   **Semester: II**

Program: APE(GAS), ASE, ASE+AVE, CE+RP, E&C, ELECTRICAL and PSE

Time: 03 hrs.   **Max. Marks: 100**

**Instructions:** *1. Take the necessary scale if required.*

2. Assume the required dimension if not given

SECTION A (20 Marks)

S. No.	Question	Marks	CO
1.	Draw the projections of the following points on the same ground line, keeping the projectors 30 mm apart. i. A, in the H.P. and 20 mm behind the V.P. ii. B, 40 mm above the H.P. and 25 mm in front of the V.P iii. C, in the V.P. and 40 mm above the H.P. iv. D, 25 mm below the H.P. and 25 mm behind the V.P. v. E, 15 mm above the H.P. and 50 mm behind the V.P.	5	CO1
2.	Sketch five different type of lines with their significance in engineering graphics.	5	CO1
3.	Explain the different types of solids and distinguish between section of solid and frustum of solid.	5	CO2
4	A hexagonal pyramid of 30mm base side and 70mm height is standing on HP on its base such that one of the side of base is perpendicular to VP. Draw its projections showing its front and top view. It lies in the third quadrant.	5	CO2

| S. No.	Question	Marks	CO
5.	The two points A and B are in the H.P. The point A is 30 mm in front of the V.P., while B is behind the V.P. The distance between their projectors is 75 mm and the line joining their top views makes an angle of 45^0 with XY. Find the distance of the point B from the V.P.	10	CO2
6.	A cone 40 mm diameter and 60 mm axis height, it is resting on one generator on HP and that generator is parallel to VP. Draw it's projections when cone lies in the first quadrant.		
	OR	10	CO3
	A regular pentagon of 30 mm side is resting on HP on one of it's side while it's opposite vertex (corner) is 30 mm above HP and side in HP is 30^0 inclined to VP. Draw its projections if the pentagon lies in first quadrant.		
7.	Explain the significance of Isometric projection. Orthographic Projections of a pentagonal pyramid are given below, draw its isometric projection showing its dimensions.	10	CO4
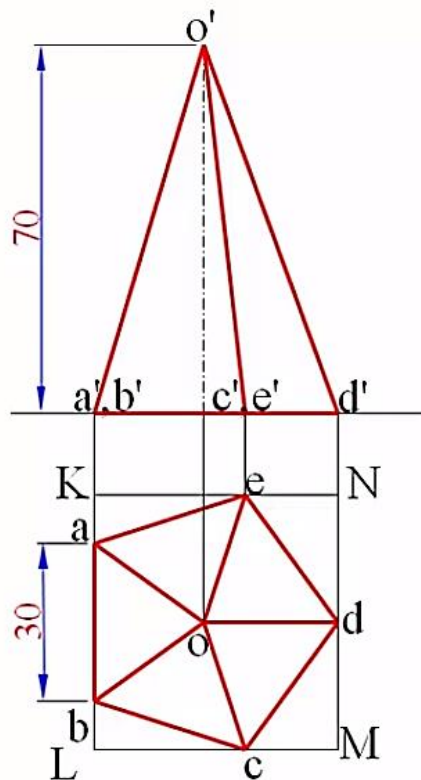
S. No.	Question	Marks	CO

8. Two objects, a flower (A) and an orange (B) are within a rectangular compound wall, whose P & Q are walls meeting at 90^0. Flower A is 1m & 5.5m from walls P & Q respectively. Orange B is 4m & 1.5m from walls P & Q respectively. Drawing projection, find distance between them (True Length). If flower is 1.5m and orange is 3.5m above the ground. Consider suitable scale.
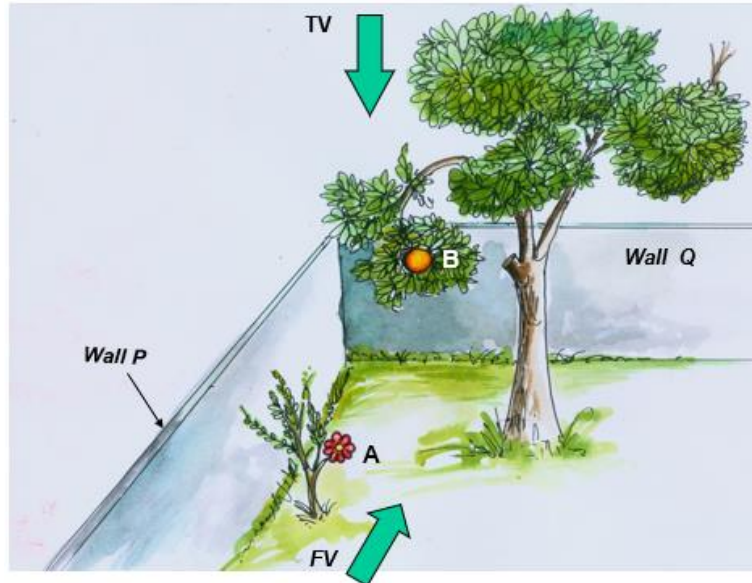
10   CO3

SECTION-C (40 Marks)

9. A Rhombus of diagonals 30mm and 60mm long respectively having one end of it's longer diagonal in HP while that diagonal is 35^0 inclined to HP and makes 40^0 inclination with VP. Draw it's projections when rhombus lies in the first quadrant.

20   CO3

10. A cone, 40 mm base diameter and 70 mm axis is standing on it's base on HP. It cut by a section plane 45^0 inclined to HP through base end of end generator. Draw projections, sectional views and true shape of section. Cone lies in the first quadrant.

OR

A pentagonal pyramid of base side 30mm and axis length 80mm has one of its base side perpendicular to VP and resting on HP on its base. The solid is cut by a plane passing through the mid of axis and inclined at 45^0 to VP. Draw the cut section of the solid and true section of it. Pentagonal pyramid lies in the first quadrant.

20   CO4