UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Supplementary Examination, May 2022

Course: Engineering Graphics **Semester : II**
Program: B. Tech (Applied Petroleum Engineering) + Gas Stream **Time : 03 hrs.**
Course Code: MECH1004 **Max. Marks : 100**

Instructions:

SECTION A
(5Qx4M=20 Marks)

S. No.		Marks	CO
1	Draw the projections of the following points on the same ground line, keeping projectors 20 mm apart. K, in the H.P and 25 mm behind the V.P L, 45 mm above the H.P and 30 mm in front of the V.P M, in the V.P and 50 mm above the H.P N, in both the H.P and V.P	**4 M**	**CO1**
2	Draw the projections of a point P 30mm above the HP and in first quadrant if its shortest distance from XY line is 50 mm. Find the distance of point P from VP.	**4 M**	**CO4**
3	A cube of 35 mm long edges is resting on the H.P. on one of its faces with a vertical face inclined at 30° to the V.P. It is cut by a section plane parallel to the V.P. and 9 mm away from the axis and further away from the V.P. Draw its sectional front view and the top view.	**4 M**	**CO3**
4	Explain the following in CAD 1. Translation 2. Rotate 3. Shear 4.Scaling	**4 M**	**CO1**
5	Write the correct line type for following 1. Outlines or principal lines are drawn as ___ 2. Lines for hidden edges are drawn as __ _ 3. Dimension lines, hatching and extension lines are drawn as __ _ 4. The position of cutting plane is shown by _____ _ 5. Long breaks are shown by ---·--	**4 M**	**CO1**

SECTION B
(4Qx10M= 40 Marks)

6	A line AB 90 mm long has its end A 30 mm above H.P and 25 mm in front of V.P. Draw, its projections when it is parallel to H.P and inclined at 45^0 to V.P.	**10 M**	**CO4**
7	Draw the projections of a pentagonal pyramid, base 30 mm edge and axis 50 mm long,	**10 M**	**CO3**

	having its base on the H.P. and an edge of the base parallel to the V.P. Also draw its side view.		
8	A cube of 40 mm side is cut by a horizontal section plane, parallel to H.P at a distance of 15 mm from the top end. Draw the sectional top view and front view	**10 M**	**CO3**
9	A square prism, base 40 mm side and height 60 mm, has its axis inclined at 45^0 to the H.P, has an edge of its base, on the H.P, and inclined at $30^0$to the V.P. Draw its projections **OR** The length of the top view of a straight line AB parallel to VP and inclined at 45^0 to HP measures 55 mm. Its end A is 8 mm above HP and 20 mm in front of VP. Draw the projections and determine the true length of the line AB.	**10 M** **10 M**	**CO2** **CO4**
SECTION-C **(2Qx20M=40 Marks)**			
10	A square prism, base 40 mm side, axis 80 mm long, has its base on the H.P. and its faces equally inclined to the V.P. It is cut by a plane, perpendicular to the V.P., inclined at 60° to the H.P. and passing through a point on the axis, 55 mm above the H.P. Draw its front view, sectional top view and another top vievv on an A.I.P. parallel to the section plane.	**20 M**	**CO4**
11	The projection of the ends of a line KL are 65 mm apart, end K is 20 mm above HP and 25 mm in front of VP. End L is 15 mm below HP and 40 mm behind VP. Determine its true length, and inclination of the line with two reference planes. **OR** A cylindrical block of base, 60 mm diameter and height 90 mm, standing on the H. P. with its axis perpendicular to the H. P. Draw its isometric view.	**20 M**	**CO4**