



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Examination, July 2020

Programme: B.Tech: Mechanical, APE UP, APE GAS, CHEM CE&RP

Semester : II

Course Name: Engineering Graphics

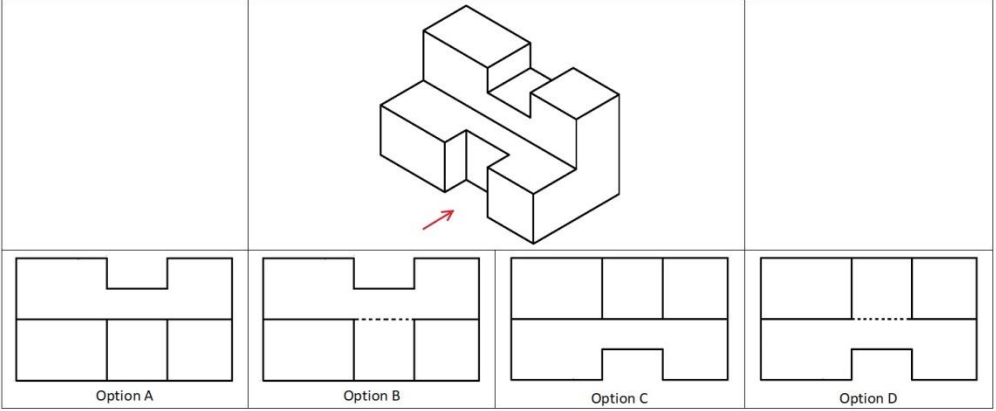
Max. Marks : 100

Course Code: MECH 1004

Attempt Duration : 24

Hrs. No. of page/s: 04

Section – A (Attempt all the questions)
(25 × 1 marks)

Q1	Match the following lines to their applications 1. Wavy line - 1. Short break lines 2. Zigzag line - 2. Long break lines 3. Dashed line - 3. Hidden edges 4. Chain line - 4. Center lines	CO1	1
Q2	A datum dimensions represents a) Length b) breadth c) height d) position	CO1	1
Q3	Match the different projection systems with the position of FV and TV 1. 2nd Angle Projection - 1. FV and TV above XY 2. 1st Angle Projection - 2. FV above XY and TV below XY 3. 3rd Angle Projection - 3. FV below XY and TV above XY 4. 4th Angle Projection - 4. FV and TV below XY	CO1	1
Q4	A point is in the VP and 20 mm below HP. Its projection is A. FV in XY line and TV 20 mm above XY line. B. FV in XY line and TV 20 mm below XY line. C. FV 20 mm below the XY line and TV in the XY line D. FV 20 mm above the XY line and TV in the XY line	CO1	1
Q5	Identify the FV in 1st Angle Projection of the 3D object shown in Figure below 	CO1	1
Q6	A line is parallel to both HP and VP. Its side view will be _____.	CO1	1
Q7	True length of a line inclined to VP will be visible in: a) FV b) TV c) SV d) information not sufficient	CO1	1
Q8	The perspective view of an object at infinite distance from the observer will be on the	CO1	1

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	picture plane at the _____.		
Q9	A plane is perpendicular to one of the principal planes, the projection on that principle plane will be _____.	CO1	1
Q10	When a surface of an object is inclined to a plane of projection, it will appear- _____ in the view. (i) foreshortened (ii) in true size and shape (iii) as a line (iv) as a point	CO1	1
Q11	A square plate of a negligible thickness is inclined to HP. The front view will appear as (i) Rhombus (ii) square (iii) Line (iv) Rectangle	CO1	1
Q12	Depending on its relationship to the projection plane on which the view is projected, a line may project: (i) true length (ii) foreshortened (iii) as a point (iv) all of the above	CO1	1
Q13	The two main classification of solids are (Select two correct answers) A. Pyramid B. Polyhedron C. Cylinder D. Cone E. Surface of revolution F. Prism	CO1	1
Q14	Name of the solid formed by revolving right angle triangle with one of its perpendicular side fixed is, (i) Cone (ii) Cylinder (iii) Tetrahedron (iv) Octahedron	CO1	1
Q15	The solid having a polygon for a base and triangular lateral faces intersecting at a vertex is (i) Pyramid (ii) Prism (iii) Cone (iv) Torus	CO1	1
Q16	A cube is resting on the HP with a solid diagonal perpendicular to it. The top view will appears as (i) Square (ii) rectangle (iii) irregular hexagon (iv) regular hexagon	CO1	1
Q17	The need of section of solid in engineering graphics is A. it makes the projection of complex objects easier B. it shows the inner complexities of an object C. It shows the true shape D. it shows the hidden lines	CO1	1
Q18	To obtain true shape of the section of solid, an auxiliary plane is set (i) Inclined at an angle of 45 to a cutting plane (ii) Parallel to XY (iii) Parallel to cutting plane (iv) Perpendicular to cutting plane	CO1	1
Q19	When a cone resting on its base on VP is cut by a section plane parallel to VP then the true shape is _____ and can be seen in _____ view. (i) Circle, Front (ii) Ellipse, Front (iii) Ellipse, Top (iv) Circle, Top	CO1	1
Q20	In isometric projection, the square faces of the cube are seen as (i) squares (ii) rectangles (iii) rhombuses (iv) any of the above	CO1	1
Q21	The rhombus method is used to draw the isometric projection of A. Cylinders B. Cones C. Spheres D. All of the above	CO1	1
Q22	Box method is used to draw isometric view of	CO1	1

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	(A) Pyramid (B) Prism (C) Cylinder (D) All of the above		
Q23	A point P having coordinates (5, 7) is rotated anticlockwise about the z axis by 30 degree. The new coordinates of the point is	CO1	1
Q24	The mirror matrix about y-axis is gives as, (i) [1, 0; 0, 1] (ii) [-1, 0; -1, 0] (iii) [1, -1; -1, 1] (iv) [-1, 0; 0, 1]	CO1	1
Q25	The development of a pentagonal pyramid will have _____ Five triangles Five rectangles Six triangles Six rectangles	CO1	1

**Section – B (Attempt all the questions)
(5 × 15 marks)**

Q1	The front view and top view of a 75 mm long line PQ makes 50° and 60° with HP and VP respectively. The end P lies 10 mm above HP and 20 mm in front of VP. Draw its projections assuming that the line lies in the 1 st quadrant.	CO1	15
Q2	A circular plate of 60 mm diameter and negligible thickness appears as an ellipse in the front view having major diameter 60 mm and minor diameter 30 mm long. Draw its projection if it is resting on the VP	CO2	15
Q3	A pentagonal pyramid of 30 mm base side and 60 mm axis is resting on one of its face edges on HP with its axis parallel to the VP. The base edges adjacent to the corner on HP make equal angles with HP. Draw it's projections if it is cut by a section plane passing through the corner on HP edge on HP and inclined at 30° to the HP. Also draw the true shape of the section.	CO3	15
Q4	A frustum of a cone is obtained by cutting a cone of base diameter 50 mm and axis 75 mm from 30 mm below the apex. It is resting on the HP on its base with its axis perpendicular to HP. Draw its isometric view and develop the surface of the frustum.	CO3	15
Q5	A straight line AB makes 45° inclination with the PP, it is behind the PP with end A being 20 mm away from PP. The end points A and B are 15 mm and 30 mm above ground respectively. The distance between the end projectors is 50 mm as measured along PP. The station point is centrally placed with respect to the projectors with 40 mm in front of PP and 50 mm above ground. Draw the perspective projection of the straight line.	CO3	15
