Course Code/Name : GE3251 ENGINEERING GRAPHICS
Branch : B.E / B. TECH (Common to all branches)
Regulation : 2021 **YEAR :2021-22**

UPC – QUESTION BANK

Sl. No	Questions	Status	Marks	Sign
	UNIT 1 –Plane Curves			
1.	Draw an ellipse with a distance of the focus from the directrix which is 70 mm andthe eccentricity which is ½. Draw a tangent and normal to a point 25 mm below the major axis. (Jan 2012, May 2016)			
2.	Draw a parabola when the distance of the focus from the directrix is 60mm. Also draw a tangent and normal at any point on the curve. (Jan 2010,13,14)			
3.	Draw a hyperbola when the distance of the focus from the directrix is 60 mm and the eccentricity is 1.5 (Jan 2010, 2014, Dec 2016, May 2017, Jan 2018)			
4.	**A coin of 40mm diameter rolls over a horizontal table without slipping.A point on the circumference of the coin is in contact with the table surface in the beginning and after one complete revolution.Draw the path traced by the point. (Jan 2011)**			
5.	Draw an epicycloid of rolling circle 40mm which rolls outside another circle of 150mm diameter for one revolution. Draw a tangent and normal at any point on the curve.			
6.	**A circle of diameter 50mm rolls along the inside of another circle of diameter 200mm without slipping. Draw the path traced by a point on the smaller circle. Draw a tangent and normal at a point on the curve. (JAN 2018)**			
7.	Acoir is unwound from a drum of 30mm diameter. Draw the locus of the free end of the coir for unwinding through an angle of 360°. Also draw a normal and tangent at any point on the curve. (Jan 2013, May 2015, Dec 2015)			
8.	**A fixed point is 75 mm from a fixed straight line. Draw the locus of a point 'P' moving such a way that its distance from the fixed point is twice its distance from the fixed straight line. Name the curve. Draw the tangent and normal at any point on the curve. (May 2018)**			
9.	An inelastic string of length 100 mm is wound around a circle of diameter 26 mm. Draw the path traced by the end of the string. Draw also a normal and tangent at any point on the curve. (Dec 2018)			
10.	**A circus man rides a motor-bike inside a globe of 6 m diameter. The motor-bike has the wheel of 1 m diameter. Draw the locus of the point on the circumference of the motor-bike wheel for one complete revolution. Adopt suitable scale. (May 2014)**			

UNIT II Projection of points, Lines and Plane Surface

1.	**A straight line AB of 50mm length has its end point A 15mm above the HP and the end B20mm infront of the VP. The top view of the line is 40mm long and the elevation is 35mm long. Draw the projections of the line and find the true inclinations of the line with VP and the HP. (May June 2014)**			
2.	A straight line AB has its end A 15mm above the HP and 10mm infront of VP. The other end B is 25mm infront of VP. The VT is 10mm above the HP. Draw the projections of the line if the distance between the end projectors is 25mm and find its true length and trueangles of inclinations with the HP and the VP. Locate the HT. (Nov – Dec 2017)			
3.	The end A of a line AB is 10mm infront of VP and 20mm above HP. The line is 30° to HP and front view is 45° with XY line. The top view is 60mm long. Complete the two views. Find the true length and inclinations with VP. Locate the traces.			
4.	A line AB has its end A 15mm above HP and 20mm infront of VP. The end B is 60mm above HP and the line is inclined at 30° to HP. The distance between the end projectors of the line is 55mm. Draw the projections and find its inclination with VP. (Dec 2011)			
5.	End A of the line AB is 15mm above HP and 20mm infront of VP. The other end is 50mm above HP and 65 mm infront of VP. The distance between the end projector is 50mm. Draw the projection and find true inclinations and true length by the rotating plane method.(Jan 2011, Dec 2016)			
6.	**The projections of line measure 80 mm in the top view and 70 mm in front view. The mid-point of the line is 45 mm in front of VP and 35 mm above HP. One end is 10 mm in front of VP and nearer to it. Draw the projections. Find true length and true inclintions with reference planes. (May 2013)**			
7.	Draw the projections of the following points on a common reference line. P, 35 mm behind VP and 20 mm below HP Q, 40 mm infront of VP and 30 mm above HP R,50 mm behind VP and 15 mm above HP S,40 mm below HP and on VP T, 30 mm infront of VP and 50 mm below HP (Jan 2013)			
8.	**A hexagonal lamina of side 30mm is resting on the HP such that one of its corners touches the HP and the VP. Draw the projections when its surface makes 30° with theHP and 60° with the VP. (Nov – Dec 2015)**			
9.	A circular lamina 60 mm diameter is resting on VP on one of its circumference point such that the surface is inclined at 40° to VP. Draw the projections of a lamina if the diagonal passing through the point on which it is resting is making 50° with HP. (Jan 2014)			
10.	A regular pentagonal lamina of 30mm sides has one edge in HP and inclined at an angle of 30° to VP. Draw its projections when its surface is inclined at 45° to HP. (Jan 2005, 2011)			
11.	A rectangular lamina 40 x 70 mm size is standing on one of its corner with the sides equally inclined to HP. The surface of the lamina I inclined to VP at an angle of 30° to VP. The diagonal passing through the resting corner makes an angle of 55° with HP. Draw the projection			

	of the rectangular lamina. (Jan 2019)			
12.	**A pentagonal lamina of 30 mm side rests on HP on one of its corners with its surface inclined at 30° to HP. Draw its projections when the side opposite to the resting corner is 45° inclined to VP. (May 2017)**			
	UNIT III Projection of Solids and Free hand sketching			
1.	Draw the projections of a pentagonal pyramid with a side of base 30mm and axis 70mm long when i) one of its triangular faces is perpendicular to HP. II) one of its slant edgesis vertical (Nov/Dec -17)			
2.	**A square prism of 40mm and base side 60mm long axis is kept on VP ona corner of its base such that the longer edge containing that corner makes an angle of 30° to VP.Drawthe projection. (Nov/Dec -16)**			
3.	A hexagonal pyramid with 30mm base side and 70mm long axis is lying on a slant edge on the ground such that the axis is parallel to VP. Draw its projection. (Apr/May -17)			
4.	**Acone of 30mm diameter and height 70mm rests on the ground on one of its base circle points such that the apex is 20mm from VP.The nearest point of the base is 50mm from VP and the base is perpendicular to HP.Draw its projection (Nov/Dec -17)**			
5.	Draw the projection of a pentagonal prism of 30mm base edge and axis 60mm long when the axis is inclined at 75° to HP and parallel to VP with an edge of the base on HP.(Jan-2012)			
6.	Draw the projections of cylinder of diameter 40mm and axis 70mm long when it rests on VP on one of the its base points.The axis of cylinder is parallel to HP and inclined at 45° to VP. (Nov/Dec -09)			
7.	A cone of base diameter 50mm and axis length 60mm is resting on VP on one of its generators with the axis parallel to HP. Draw its projections.			
8.	**A hexagonal pyramid of base side 35mm and axis height 80mm is freely suspended from one of its corner such that the axis is parallel to VP. Draw projection of solid.(Nov/Dec - 14)**			
9.	A cylinder of base diameter 30 mm and axis 70 mm long has its cylindrical end that is inclined at 30° to VP. Draw its projections, when the front view of the axis is parallel to VP. (Jan 2019)			
10.	Square pyramid of side 30 mm and axis 60 mm long has one of its slant edge inclined at 45° to HP and a plane containing that slant edge and axis is inclined at 40° to VP. Draw the projections of the square pyramid. (Dec 2018)			
11.	**Draw the projections of a cube of edge 45 mm resting on one of its corners on HP, witha solid diagonal perpendicular to HP. (Dec 2015, Apr 2018, Dec 2018)**			
12.	A cone of base diameter 40 mm and height 56 mm is freely suspended from one of its base points such that its axis parallel to VP. Draw its projections. (Dec 2015)			
13.	**Sketch by free hand, the following views of the objects shown in the figure. The dimension is also to be marked by free hand.** **The front view in the direction of the arrow.** **The top view** **The side view, as viewed from the side available for view.**			
14.	**Draw the front, top and side views of the component in Fig. by free hand.**			

UNIT IV Projection of Sectioned Solids and Development of Surfaces

1.	A pentagonal pyramid side of base 30mm and height 52mm stands with this base of HP and an edge of base is parallel to VP and nearer to it.It is cut by a plane perpendicular to VP inclined at 40° to HP and passing through a point on the axis 32mm above the base .Draw the sectional top view and develop the lateral surface of the truncated pyramid. (Dec/Jan -13)			
2.	**A cone of base 60mm and height 80mm is resting with its base on HP.An insect starts from a point on the circumference of the base goes round the solid and reaches the starting point in the shortest path. Find the distance travelled by insect and also the projections of the path followed by it. (Nov/Dec -10)**			
3.	A circular hole of diameter 30mm is drilled through a vertical cylinder of diameter 50mm and height 65mm .The axis of hole is perpendicular to VP and meets the axis of the cylinder at right angles at a height of 30mm above the base. Draw the development of the lateral surface of the cylinder. (Jan 2014)			
4.	**A lamp shade is formed by cutting a cone of base 144mm diameter and 174 mm height by horizontal plane at a distance of 72mm from the apex and by an another plane inclined at 30° to HP and passing through one extremity of the base. Draw the development of lamp shade. (Nov/Dec -14)**			
5.	A Square pyramid of base side 25mm and axis 70mm is resting on its base on HP with two of its base sides equally inclined to VP. Itis cut by a section plane perpendicular to VP and inclined at 40° to HP passes through the axis at a height of 30mm above the base. Draw the front view, sectional top view and true shape of the section (Nov/Dec-15)			
6.	**A hexagonal prism of base side 35mm and axis length 55 mm is resting on HP on one of its base with two of its vertical faces perpendicular to VP.It is cut by aplane inclined at 50 ° to HP and perpendicular to VP and passing through a point at a distance 15mm from the top base .Draw its front view ,sectional top view and true shape of the section (Dec/Jan-2010)**			
7.	A cone of base 65mm diameter and axis 80mm stands vertically with its base on HP.The vertical trace of a section plane is perpendicular to VP and parallel to one of its generators of the cone,passes at a distance of 15mm from it. Draw its frontview,sectional top view and true shape of the section.Name the curve of the true shapeof the section (Dec/Jan-2016)			
8.	A hexagonal pyramid of base of side 25mm and altitude 50mm is resting vertically on its base on the ground with two of the sides of base perpendicular to VP.It is cut by a plane perpendicular to VP and inclined at 40° to HP. The plane bisects the axis of the pyramid .Draw the development of lateral surface of the pyramid (Dec/Jan-2018)			
9.	**A hexagonal prism of base side 30 mm and axis length 65 mm is resting on HP on its base with two of its rectangular face parallel to VP. A circular hole of diameter 40 mm is drilled completely through the prism such that the axis of the hole is perpendicular to VP and bisects the axis of the prism. Draw the development of the lateral surface of the prism showing the shape of the holes formed on it. (June 2016)**			
10.				

	mm, is resting on HP on its base with one edge of its base parallel to and closer to VP. A cutting plane, parallel to and passing through point 16 mm in front of the top view of the axis, cuts the solid. Draw the sectional front view of the pyramid.(Dec 2017)			
11.	A tetrahedron of 60 mm long edges rests with one of its face on HP and an edgeis perpendicular to VP. A section plane perpendicular to VP cuts the tetrahedron such that the true shape of the section is an isosceles triangle of base 50 mm and altitude 36 mm. Draw the front view, sectional top view and true shape of the section. Also find the inclination of the plane. (Dec 2011)			
12.	**A cube of side 30 mm rests on HP on its end with the vertical faces equally inclined to VP. It is cut by a plane perpendicular to VP and inclined at 30° to HP meeting the axis at 25 mm above the base. Draw the front view, sectional top view and true shape of the section. (Jan 2014)**			
	UNIT V Isometric and Perspective Projections			
1.	A pentagonal pyramid of base edge 30 mm and height 65 mm rests on the HP on its base such that an edge of the base is parallel to VP and nearer to it. It is cut by a plane perpendicular to VP and inclined at 30° to the HP. It intersects the axis of the pyramid at a height of 35 mm from the base. Draw the isometric view of the truncated pyramid. (QPC: 50650-NOV-DEC 2017)			
2.	**A hexagonal prism of base side 20 mm and height 40 mm has a square hole ofside 16 mm at the centre. The axes of the square and hexagonal prism coincide. One of the faces of the square hole is parallel to a face of the hexagonal prism. Draw the isometric projection of the prism with hole to full scale.(JAN 2013)**			
3.	A cylinder of base diameter 30 mm and axis 50 mm is placed on its base centrally on the top of a square slab of side 50 mm and thickness 20 mm. Draw the isometric projection of the combination of solids to full scale. (NOV-DEC 2015)			
4.	**A sphere of 18 mm is placed centrally over a hexagonal slab of side 24 mm and thickness 25 mm. Draw the isometric view of the combination.(MAY-JUN 2014)**			
5.	Draw the isometric view of a hexagonal pyramid of base side 30 mm and height 70 mm rests on its base on HP with a base edge parallel to VP. It is cut by a plane perpendicular to VP inclined at 45° to HP and meeting the axis at 40 mm from thebase. (Jan 2019)			
6.	A frustum of a cone with base diameter 45 mm and top diameter 30 mm is centrally placed over a hexagonal prism of base side of 35 mm and height 40 mm.The height of the cone frustum is 50 mm. Draw the isometric view of the combined structure. (Nov/Dec 2018)			
7.	A cylinder 30 mm diameter and 50 mm length lies on the ground on one of its generators with its axis perpendicular to the PP. The nearest point of the solid is 20 mm on the right of station point and 20 mm behind PP. Draw the perspective view of the cylinder if the station point is 50 mm above GP and 100 mm in frontof PP. (QPC: 97080-NOV-DEC 2014)			
8.	A cylinder of 60 mm diameter and axis 70 mm long lies on the ground on its generator such that the axis inclined at 30° to the picture plane. Draw its perspective view when one of the end points touches the picture plane. The station point lies in the central plane which is			

	bisecting the axis and is 160 mm in front of the picture plane. The horizon level is at 70 mm height.(NOV-DEC 2014)			
9.	**A rectangular pyramid of base 30 mm x 40 mm x 50 mm height is resting on the GP on its base, with a corner of the base touching the PP. The longer base edge is on the right and inclined at 30 ° to the PP. The station point is 50 mm in front of the PP and 75 mm above the GP. If the central plane is 20 mm on the left of the axis of the pyramid, draw a perspective projection of the pyramid. (QPC: 52635- NOV-DEC 2017)**			
10.	**A square pyramid having base of side 40 mm side and height 60 mm rests on the GP with an edge of the base parallel to and 15 mm behind the picture plane. The station point is 90 mm above the GP and 75 mm in front of the picture plane and lies in a central plane which is 40 mm towards the right of the axis of the pyramid. Draw its perspective view. (QPC: 50650-NOV-DEC 2017)**			
11.	**A rectangular prism with sides of base 50 mm x 35 mm ad height 60 mm restswith its base on the ground plane. A vertical edge is in the picture plane and one of the longer edges of its base is inclined at 40° to picture plane and behind it. The station point is 50 mm infront of PP, 75 mm above the ground plane and lies in a central plane which passes through the center of the prism. Draw the perspective projection of the rectangular prism. (Nov/Dec 2018)**			
12.	**Draw the perspective view of a square prism of base side 20 mm and height 35 mm resting on an end on the ground with a rectangular face parallel to the picture plane. The axis of the prism is 25 mm behind the picture plane and 25 mm to the right of the eye. The eye is 50 mm in front of PP and 50 mm above the ground.(Jan 2018)**			

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