

CBCS SCHEME

USN

18EGDL15

First Semester B.E. Degree Examination, January 2019

ENGINEERING GRAPHICS

Time: 3 Hours

(COMMON TO ALL BRANCHES)

Max. Marks: 100

- Note:** 1. Answer three full questions. 2. Use A4 sheets supplied.
3. Draw to actual scale. 4. Missing data, if any, may be assumed suitably.

1. A line AB 60 mm long has one of its extremities 20 mm in front of VP and 15 mm above HP. The line is inclined at 25° to HP and 40° to VP. Draw its top and front views. **25 Marks**

OR

1. A hexagonal lamina of sides 25 mm rests on one of its corners on HP. The corner opposite to the corner on which it rests is 35 mm above HP and the diagonal passing through the corner on which it rests is inclined at 30° to VP. Draw its projections. Find the inclination of the surface with HP. **25 Marks**
2. A square prism 35 mm side of base 60 mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30° . Draw the projections of the prism when the axis is inclined to HP at 45° . **45 Marks**
3. A square prism of base side 30 mm and axis length 50 mm is resting on HP on one of its base with all the vertical faces being equally inclined to VP. It is cut by an inclined plane 60° to HP and perpendicular to VP and is passing through a point on the axis at a distance 45 mm from the base. Draw the development of the lower portion of the prism. **30 Marks**

OR

3. A sphere of diameter 50 mm rests centrally on top of a cube of sides 50 mm. Draw the isometric projections of the combination of solids. **30 Marks**

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1. A straight line AB measuring 80 mm long has the end A in the HP and 25 mm in front of the VP. Its midpoint M is 25 mm above the HP and 40 mm in front of the VP. Draw the projections of the line and determine the inclination of the line with HP and VP. **25 Marks**

OR

1. A circular lamina of 30 mm diameter rests on VP such that one of its diameters is inclined at 30° to VP and 45° to HP. Draw its top and front views in this position. **25 Marks**
2. A square pyramid 35 mm sides of base and 60 mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45° . **45 Marks**
3. Draw the development of the lateral surface of a funnel consisting of a cylinder and a frustum of a cone. The diameter of the cylinder is 20 mm and top face diameter of the funnel is 80 mm. the height of frustum and cylinder is equal to 60 mm and 40 mm respectively. **30 Marks**

OR

3. A rectangular pyramid of base 40 mm X 25 mm and height 50 mm is placed centrally on a rectangular slab sides 100 mm X 60 mm and thickness 20 mm. Draw the isometric projection of the combination. **30 Marks**

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1. A straight line PQ 65 mm long is inclined at 45° to HP and 30° VP. The point P is 70 mm from both the reference planes and the point Q is towards the reference planes. Draw the projections. **25 Marks**

OR

1. A square plate of 40 mm sides rests on HP such that one of the diagonals is inclined at 30° to HP and 45° to VP. Draw its projections. **25 Marks**

2. A hexagonal prism 25 mm sides of base and 50 mm axis length rests on HP on one of its edges of the base. Draw the projections of the prism when the axis is inclined to HP at 45° and VP at 30° . **45 Marks**

3. A rectangular prism of base size 25 mm X 40 mm and axis length 65 mm is resting on HP on its base with the longer side of base inclined at 30° to VP. It is cut by a plane inclined at 40° to HP and perpendicular to VP and passes through the extreme left corner of base. Draw the development of the lateral surface of the remaining portion of the prism. **30 Marks**

OR

3. A hemisphere diameter 70 mm is placed on the ground on its curved surface. A cone base diameter 70 mm and height 70 mm is placed centrally on it. Draw the isometric projection of the combination. **30 Marks**

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1. The front view of a 90 mm long line which is inclined at 45° to the XY line, measures 65 mm. End A is 15 mm above the XY line and is in VP. Draw the projections of the line and find its inclinations with HP and VP. **25 Marks**

OR

1. A pentagonal lamina of side 25 mm is having a side both on HP and VP. The corner opposite to the side on which it rests is 15 mm above HP. Draw the top and front views of the lamina. **25 Marks**
2. A cone of 50 mm base diameter and 60 mm axis length rests on HP on one of its generator. Draw its projections when the axis is inclined to VP at 30° . **45 Marks**
3. A hexagonal pyramid, base sides 25 mm and height 60 mm, is resting with its base on HP and edge of base inclined at 40° to VP. It is cut to the shape of a truncated pyramid with the truncated surface inclined in the front view at a point on the axis 20 mm from the apex and inclined at 40° to XY. Draw the projections and show the development of the lateral surface of the remaining portion of the pyramid. **30 Marks**

OR

3. A rectangular pyramid of base 40 mm X 25 mm and height 50 mm is placed centrally on a cylindrical slab of diameter 100 mm and thickness 30 mm. Draw the isometric projection of the combination. **30 Marks**

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1. The top view of PQ of a straight line is 70 mm and makes an angle of 60° . The end Q is 10 mm in front of VP and 30 mm above the HP. The difference between the distance of P and Q above the HP is 45mm. Draw the projections. Determine its true length and true inclinations with HP and VP. **25 Marks**

OR

1. A pentagonal lamina of edges 25 mm is resting on VP with one of its sides such that the surface makes an angle 60° with VP. The edge on which it rests is inclined at 45° to HP. Draw its projections. **25 Marks**
2. A pentagonal pyramid 25 mm sides of base and 60 mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30° . Draw the projections of the pyramid when the axis is inclined to HP at 40° . **45 Marks**
3. A frustum of a square pyramid has its base 40 mm sides, top 16 mm sides and height 60 mm, its axis is vertical and side of base is parallel to VP. Draw the projections of the frustum and show the development of the lateral surfaces of it. **30 Marks**

OR

3. A cone of base diameter 30 mm and height 40 mm rests centrally over a cube of side 50 mm, draw the isometric projections of the combination of the solids. **30 Marks**

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- Note:** 1. Answer three full questions. 2. Use A4 sheets supplied.
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- 1 Draw the projections of a line PQ and find its true length and inclinations **25 Marks** when the line is inclined at 30° to HP and 45° to VP. The line is having one of its ends 15 mm above HP and 20 mm in front of VP. The distance between the end projectors on the XY line is 60 mm.

OR

1. A 30° - 60° set square of 60 mm longest side is so kept such that the longest side is in HP, making an angle of 30° with VP. The set square itself is inclined at 45° to HP. Draw the projections of the set square. **25 Marks**
2. A pentagonal prism 25 mm sides of base and 60 mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30° . Draw the projections of the prism when the axis is inclined to HP at 40° . **45 Marks**
3. A rectangular prism of base 30 mm X 20 mm and height 60 mm rests on HP on its base with the longer base side inclined at 40° to VP. It is cut by a plane inclined at 45° to HP, perpendicular to VP and bisects the axis. Draw the development of the lateral surface of the prism. **30 Marks**

OR

3. A regular pentagonal prism of base edge 30 mm and axis 60 mm is mounted centrally over a cylindrical block of 80 mm diameter and 25 mm thick. Draw isometric projection of the combined solids. **30 Marks**

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1. A line PQ 85mm long has its end P 10 mm above HP and 15mm in front of the VP. The top view and front view of line PQ are 75 mm and 80mm respectively. Draw the projections. Also determine the true and apparent inclinations of the line. **25 Marks**

OR

1. A regular pentagonal lamina of 25mm side is resting on one of its sides on HP while the corner opposite to this side touches VP. If the lamina makes an angle 45° with HP and 30° with VP, draw the projections of the lamina. **25 Marks**
2. A hexagonal prism 25 mm sides of base and 50 mm axis length rests on HP on one of its edges. Draw the projections of the prism when the axis is inclined to HP at 45° and appears to be inclined to VP at 45° . **45 Marks**
3. A square pyramid of 25 mm base edge and 50 mm height rests with its base on HP with its base edges equally inclined to VP. It is cut by a plane perpendicular to VP and inclined to HP at 60° , passing through the extreme right corner of the base. Draw the development of the lateral surface of the pyramid. **30 Marks**

OR

3. A sphere of diameter 50 mm rests centrally on top of a cube of sides 50 mm. Draw the isometric projections of the combinations of solids. **30 Marks**
