Reg. No. : $\square$

## Question Paper Code : 80636

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2021.

First Semester
Civil Engineering
GE 2111/ME 15 - ENGINEERING GRAPHICS
(Common to All Branches)
(Regulations 2008)
Time : Three hours
Maximum : 100 marks
Answer ALL questions.

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(5 \times 20=100 \text { marks })
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1. (a) (i) The head lamp reflector of a motor car has a maximum rim diameter of 130 mm and maximum depth of 100 mm . Draw the profile of the reflector and name it.
(ii) Draw the involute of a circle of diameter 40 mm .

Or
(b) (i) Differentiate first angle projection with third angle projection
(ii) Draw the orthographic views for the given isometric views using free hand:
(1) Front view
(2) Top view
(3) Side view.

Mark the dimensions.

2. (a) A straight line AB has its end point A 15 mm in front of V.P. while the other end $B$ is 50 mm in front of V.P. The plan view of the line is 50 mm long and the HT of the line is 10 mm in front of V.P. Draw the projection of the line if it is inclined at $30^{\circ}$ to the H.P. Also find its VT.

## Or

(b) A rhombus ABCD has its diagonal $\mathrm{AC}=50 \mathrm{~mm}$ and $\mathrm{BD}=80 \mathrm{~mm}$. The side $A B$ of the plane is in the H.P. The side $B C$ is in the V.P and the plane makes an angle $30^{\circ}$ with the H.P. Obtain the projections of the plane and find its inclination with the V.P.
3. (a) Draw the projections of a cube of edge 45 mm resting on one of its corners on HP, with a solid diagonal perpendicular to HP.

Or
(b) A square pyramid of base 40 mm and axis 70 mm long has one of its triangular faces on VP and the edge of base contained by that face perpendicular to HP. Draw its projections.
4. (a) A vertical cylinder 40 mm diameter is cut by a vertical section plane making $30^{\circ}$ to VP in such a way that the true shape of the section is a rectangle of 25 mm and 60 mm sides. Draw the projections and true shape of the section.

## Or

(b) A rectangular pyramid $60 \mathrm{~mm} \times 50 \mathrm{~mm}$ and height 75 mm is resting on its base on HP with its longer base edges parallel to VP. It is sectioned by a plane perpendicular to VP, inclined at $65^{\circ}$ to HP and passing through the mid-point of the axis. Develop the lateral surfaces of the cut pyramid.
5. (a) A hexagonal prism of base side 20 mm and height 40 mm has a square hole of side 16 mm at the centre. The axes of the square and hexagon at prismcoincide. One of the faces of the square hole is parallel to a face of the hexagon at prism. Draw the isometric projection of the prism with hole to full scale.

## Or

(b) Steps provided for an LIG house consist of three treads of 250 mm each and three rises of 150 mm each. The length of the steps is 1000 mm . The steps are parallel to the picture plane. The nearest face of the steps is 500 mm behind the PP. The station point is 2000 mm in front of the PP and 1000 mm above the ground The station point lies in a central plane 1250 mm to the right of the right extreme face of the steps. Draw the perspective view of the steps.

