Reg. No.

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B.E / B.TECH. DEGREE EXAMINATIONS, MAY 2023

First Semester

## ME22101 - ENGINEERING DRAWING

(Common to ME, MN, MR)
(Regulation 2022)

## TIME: 3 HOURS

COURSE
OUTCOMES
STATEMENT
MAX. MARKS: 100 Leve

CO 1 Construct conic sections and curves and sketch the orthographic views of lines as per drawing standards.
CO 2 Draw orthographic projections of plane surfaces and simple solids in various positions.
CO 3 Draw the various views of sectioned solids and develop the lateral surfaces of simple solids.
CO 4 Draw isometric projections of simple solids and their combinations and the orthographic projection of the intersection of surfaces of simple solids.
CO5 Sketch the orthographic projections of a given isometric view and vice versa using free hand.

PART-A (5 x $16=80$ Marks $)$
Marks CO $\begin{gathered}\text { RBT } \\ \text { LEVEL }\end{gathered}$

1. (a) Develop the involute of a circle of radius 20 mm . Also draw the tangent (16) $\mathbf{1} 3$ and normal at any point on the curve.

## (OR)

(b) A line AB 70 mm long is inclined at an angle of $45^{\circ}$ to H.P. and $30^{\circ}$ to (16) $\mathbf{1}$ V.P. The point A is 20 mm above H.P. and 15 mm in front of V.P. Draw the projections of the straight line.
2. (a) A circular lamina of diameter 40 mm rests on one of its circumference point on H.P. The diameter containing the point is inclined at $45^{\circ}$ to V.P. The surface of the lamina is inclined $40^{\circ}$ to H.P. Draw its projections.

## (OR)

(b) A square pyramid of base side 40 mm and axis length 70 mm is resting on HP on one of its base edge with its axis parallel to VP and inclined at $50^{\circ}$ to HP. Draw its projections
3. (a) A hexagonal pyramid of base 35 mm and axis 70 mm is resting on HP on its base with two sides of base perpendicular to VP. It is cut by a plane inclined at $45^{\circ}$ to V.P, perpendicular to H.P and 10 mm away from the axis. Draw its top view, sectional front view and true shape of the section.
(b) A pentagonal pyramid has a base side of 30 mm and axis height of 70 mm It rests with its base on H.P, such that one of the base edges perpendicular to V.P. The pyramid is cut by a plane which bisects the axis and it is inclined at $30^{\circ}$ to HP. Draw the development of the remaining portion of the pyramid.
4. (a) A hexagonal pyramid of base side 30 mm and height 60 mm rests on its base on H.P with two of its base edges perpendicular to V.P. It is cut by a plane perpendicular to V.P and inclined at $25^{\circ}$ to H.P, meeting the axis at a point 25 mm above the base of the pyramid. Draw the isometric projection of the truncated pyramid.

## (OR)

(b) A cylinder 50 mm diameter. and 70 mm axis is completely penetrated by another of 40 mm diameter, and 70 mm axis horizontally. Both axes intersect \& bisect each other. Draw the projections showing curves of intersections.
5. (a) Draw the three orthographic views for the following fig. (16) 5

(OR)
(b) Draw the isometric views for the following fig.


## PART- B ( $1 \times 20=20$ Marks $)$


(16) 5
6. A circus animal rides small motor bike inside a globe of 200 mm

diameter. The motor bike has the wheel of 40 mm diameter. Draw the locus of the point on the circumference of the motor-bike for one complete revolution.

