## FACULTY OF ENGINEERING

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\text { B.E. I-Year (Common to All) (Main) Examination, June } 2013
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## Subject : Engineering graphics

Time : 3 Hours

Max. Marks: 100
Note: Answer all questions of Part - A and answer any five questions from
Part-B.

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PART - A (35 Marks)
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1. A room of 1000 m 3 volume is represented by a block of 125 cm 3 volume. Find R.F.
2.(a) The top view of a point 'a' is 35 mm above $X Y$, the font view is 10 mm below the top view. If so, the point 'a' is in

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quadrant.
(b) The top view and front view are always in line and the front view and side view are always in line (vertically / horizontally).
3. Draw the development of the frustum of a cone whose base diameter is 75 mm , top diameter is 35 mm , height is 40 mm .
4. What do you mean by curves of interpentration? (4)
5.(a) an isometric view is
(b) If the cylinders of same diameter intersect each other orthogonally, the resulting curves of intersection are
6. Define Epicycloid and Hypocycloid.
7. A square plane $A B C D$ of side 30 mm is perpendicular to V.P. and inclined to H.P at an angle of $40^{\circ}$. Draw its projections and find its traces.
8. Differentiate between section, sectional top view and sectional front view.
9. What data is required to construct a scale?
10. Inscribe a hexagon in a circle of 50 mm diameter.

PART - B ( 65 Marks)
11.(a) A rectangular plot of land of area $16 \mathrm{sq} . \mathrm{m}$ is represented by a similar rectangle 1 sq . cm on a map. Find R.F construct a scale to read meters from the map.
The scale should be long enough to measure upto 100 m . On the scale, indicate distances of $82 \mathrm{~m}, 55 \mathrm{~m}$ and 25 m .
(b) Two points $A$ and $B$ are 100 mm apart. A point ' $C$ ' is 75 mm from $A$ and 60 mm from $B$. Draw an ellipse passing through $A, B$ and $C$.
12.(a) One end $A$ of a straight line $A B$ is 20 mm above H.P. and. 50 mm before V.P. The other end $B$ is 70 mm above H.P. and 25 mm before V.P. The distance between the end projectors of the line is 60 mm . Draw the projectors of the line and find the length, true inclination with H.P. and V.P. and the traces of the line. (b) Draw an epicycloids given the radii of rolling and directing circles as 30 mm and 120 mm respectively. Also draw a normal and a tangent at any point on the curve,
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13. A circular disc of dia. 40 mm and negligible thickness rests on HP on its rim and makes an angle of $45^{\circ}$ to it. One of its diameters is inclined to VP at $30^{\circ}$. Draw its projections keeping distance of the centre of the disc 40 mm in front of the VP.
14. A right regular pentagonal prism, side of base 30 mm and height 75 mm , rests on one of its base corners on HP such that its long edge containing the corner is inclined to the HP at 60o and the side of base, opposite the corner, inclined at $30^{\circ}$ to VP. Draw its projections keeping the vertex towards the VP.
15. A right regular rectangular pyramid of base $50 \times 35 \mathrm{~mm}$ and height 70 mm , rests on its base in HP with one of its base sides parallel to VP. A section plane perpendicular to the VP and inclined at $30^{\circ}$ to the HP cuts the pyramid, bisecting its axis. Develop the lateral surface of the truncated pyramid.
16. A cylinder, diameter of base 60 mm and 90 mm long, resting on its base in HP, is penerated completely by another cylinder of the same dimensions such that axes are mutually perpendicular and symmetrical about one another. The axis of the penetrating cylinder is 9 mm in front of the axis of the vertical cylinder and is parallel to both the H.P. and V.P. Draw the projection of the solids showing curves of intersection.
17. Draw the Isometric projection of two solids. A sphere is placed centrally on the top of the truncated square pyramid of top face 30 mm side and bottom face of 40 mm side, when the height of the solid is 60 mm .

