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FACULTY OF ENGINEERING B.E. I-Year (Common to All) (Main) Examination, June 2013

Subject : Engineering graphics

Time : 3 Hours

Max. Marks: 100

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

PART – A (35 Marks)

1. A room of 1000m3 volume is represented by a block of 125cm3 volume. Find	
R.F.	(4)
2.(a) The top view of a point 'a' is 35mm above XY, the font view is 10mm below the	
top view. If so, the point 'a' is in quadrant	_(1)
(b) The top view and front view are always in line and the front view and	
side view are always in line(vertically / horizontally).	(2)
3. Draw the development of the frustum of a cone whose base diameter is 75mm,	
top diameter is 35mm, height is 40mm.	(⁵)
What do you mean by curves of interpentration?	(4)
5.(a) an isometric view is	_(1)
(b) If the cylinders of same diameter intersect each other orthogonally, the resulting	
curves of intersection are	_(1)
Define Epicycloid and Hypocycloid.	$(^{3})$
7. A square plane ABCD of side 30mm is perpendicular to V.P. and inclined to H.P	()
at an angle of 40°. Draw its projections and find its traces.	(⁵)
8. Differentiate between section, sectional top view and sectional front view.	(³)
9. What data is required to construct a scale?	(³)
10. Inscribe a hexagon in a circle of 50mm diameter.	(³)

PART - B (65 Marks)

- 11.(a) A rectangular plot of land of area 16 sq.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 100m. On the scale, indicate distances of 82m, 55m and 25m.
 - (b) Two points A and B are 100mm apart. A point 'C' is 75mm from A and 60mm from B. Draw an ellipse passing through A, B and C.
- 12.(a) One end A of a straight line AB is 20mm above H.P. and. 50mm before V.P. The other end B is 70mm above H.P. and 25mm before V.P. The distance between the end projectors of the line is 60mm. Draw the projectors of the line and find the length, true inclination with H.P. and V.P. and the traces of the line. $(^{8})$ (b) Draw an epicycloids given the radii of rolling and directing circles as 30mm and 120mm respectively. Also draw a normal and a tangent at any point on the curve, (⁵) ...2

(8)

(⁵)

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- A circular disc of dia. 40mm and negligible thickness rests on HP on its rim and makes an angle of 45[°] to it. One of its diameters is inclined to VP at 30[°]. Draw its projections keeping distance of the centre of the disc 40mm in front of the VP. (13)
- 14. A right regular pentagonal prism, side of base 30mm and height 75mm, 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° to VP. Draw its projections keeping the vertex towards the VP. (13)
- 15. A right regular rectangular pyramid of base 50 x 35 mm and height 70mm, 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° to the HP cuts the pyramid, bisecting its axis. Develop the lateral surface of the truncated pyramid. (13)
- 16. A cylinder, diameter of base 60mm and 90mm 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 9mm 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 30mm side and bottom face of 40mm side, when the height of the solid is 60mm.

(13)

(13)