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**Question Paper Code : 21643**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

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.

(5 × 20 = 100)

1. (a) Draw a hyperbola when the distance of the focus from the directrix is 70 mm and the eccentricity  $e$  is 1.5. Draw the tangent and normal to the curve at a point  $P$  distance 50 mm from the directrix. (20)

Or

- (b) Make a freehand sketch of the following three views, of the block shown pictorially in figure. (i) Front view (ii) Top view and (iii) Side view from the right. (20)

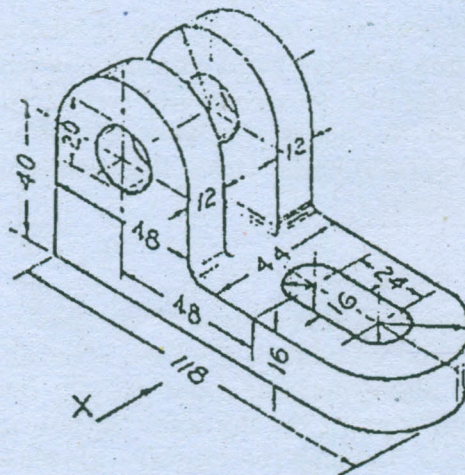


Fig. 1 (b)



2. (a) (i) A magician performs the trick of a floating stick. As seen by a person sitting right in front, as per the orthographic projection rules, the stick has its ends 0.2 m and 0.6 m above the floor and appears to be inclined at  $30^\circ$  to the floor. The same two ends are found to be 0.1 m and 0.7 m respectively in front of the screen, arranged behind the stick. Adopting a suitable scale, draw the projections of the stick. Also, find the true length of the stick and its true angles of inclination with the floor and the vertical screen. (10)
- (ii) A rhombus of diagonals 25 mm and 15 mm with longer diagonal being parallel to xy-line represents the top view of a square of diagonal 25 mm, with a corner on HP. Draw its front view. (10)

Or

- (b) (i) A straight line AB of length 100 mm has its end A 10 mm in front of VP and B 20 mm above HP. The front view and top view of the line measure 80 mm and 60 mm respectively. Draw the projections of the line and obtain the true angles of inclination with HP and VP. (10)
- (ii) A hexagonal lamina of side 30 mm is resting on HP on one of its corners with the sides containing the corner being equally inclined to HP. The surface of the lamina makes an angle of  $30^\circ$  with HP. Draw the top view and front view of the lamina if the plan of the diagonal passing through that corner is inclined at  $50^\circ$  to xy-line. (10)
3. (a) A pentagonal prism of side 30 mm and axis 70 mm long rests with one of its edges on HP such that the base containing that edge makes an angle of  $30^\circ$  to HP and its axis is parallel to VP, Draw its projections.

Or

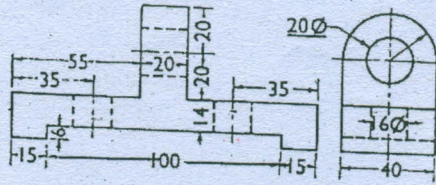
- (b) A solid cylinder of diameter 60 mm and 80 mm axis length is lying on horizontal plane with its one of the circumferential line on HP and the axis makes  $30^\circ$  to VP. Draw the projections.
4. (a) A cylinder of diameter 60 mm and height 80 mm has a central hexagonal slot of side 20 mm running right through the length. The cylinder is lying on the HP with its axis perpendicular to the VP. A vertical cutting plane cuts the cylinder in such a way that it meets the bases at 6 mm from diametrically opposite ends. Draw the sectional front view and the true shape of the section. (20)

Or

- (b) A pentagonal pyramid side of base 30 mm and height 52 mm, stands with its base on HP and an edge of the base is parallel to VP and nearer to it. It is cut by a plane perpendicular to VP, inclined at  $40^\circ$  to HP and passing through a point on the axis, 32 mm above the base. Draw the sectional top view. Develop the lateral surfaces of the truncated pyramid. (20)



5. (a) Draw the isometric view of the solid shown below :



Or

- (b) A cube of 30 mm edges is lying on one of its face on the ground plane with a vertical edge touching the picture plane for the perspective view (PP) and all the vertical faces equally inclined at  $45^\circ$  to the PP. The station point is 70 mm above the ground plane and 50 mm in front of the PP. The Central plane is 10 mm to the left of the centre of the cube. Draw the perspective projection of the cube.

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