Second Semester B.E. Degree Examination, January 2006

GRA 24 Engineering Graphics

Time : 3 hours Maximum Marks 100

Note : (i) Answer any Five questions.
(ii) Use first angle projection method.
(iii) Retain all construction lines.

a) A point lying 20 mm below the xy line represent the top views of three points xy and z. The point X is 20 mm below HP, Y is 30 mm above HP and the point Z is in HP. Draw the projections of these points and state their positions with reference to the planes and quadrants in which they lie. **(5 marks)**

b) Draw the projections of the line AB 80 mm long. The end A of the line touches HP and 40 mm infront of VP. The other end B touches VP and 50 mm above HP. Also find the inclination of the line with HP and VP. **(15 marks)**

The profile view of a line PQ 80 mm long, makes an angle of 30° with the XY line. Darw the top and front views of the line, when the length of the profile view is 50 mm. The point P of the line is 15 mn above HP and 60 mm infront of VP. The point Q of the line is close to VP. **(20 marks)**

A rectangular plate 60 mm x 40 mm has one of its shorter edges in the VP and inclined at 40° to the HP. Draw its top view if its front view is a square of 40 mm side. **(20 marks)**

Pentagonal pyramid of side of base 25 mm and axis 60 mm lies with one of its base corners on HP such that the axis is inclined at 60° to HP and the edge opposite the corner on which the pyramid rest is inclined to VP at 30°. Draw its projections. **(20 marks)**

A right regular cylinder of base diameter 50 mm and axis 60 mm lie on a point of its circumfarence on HP. Such that, the axis is inclined at 45° to HP and Parallel to VP. Draw its projections. **(20 marks)**

The inside of a hopper of a flour mill is to be lined with a thin sheet. The top and bottom of the hopper are regular pentagons with each side equal to 40 mm and 30 mm respectively. The hieght of the hopper is 40 mm. Draw the shape of the sheet to which it is to be cut so as to fit into the hopper. **(20 marks)**

A cone of base 20 mm diameter and hieght 30 mm rests on the top surface of a frustum of a hexagonal pyramid base side 25 mm and top face of 15 mm side. The hieght of the frustum is 25 mm. The axes of the two are co - axial. Draw the isometric projection of the arrangement when two sides of the hexagonal base are parallel to VP. **(20 marks)**

A hexagonal prism with base edges 25 mm and length 35 mm is resting on one of its rectangular faces on HP. A cylinder of base 25 mm diameter and hieght 25 mm rests exactly on the centre of the top rectangular face of the prism. Draw the isometric projection of the combination of the solids. **(20 marks)**

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