15006

B. Tech 1st Semester Examination

Engineering Drawing & Graphics (CBS)

ME-102

Time : 3 Hours   Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, selecting one question from each section A, B, C and D. The section E is compulsory and is short answer type. All parts of this section are to be attempted. Missing data, if any, can be assumed suitably. Mark for each question is mentioned.

SECTION - A

1. (a)   Enlist the various drawing instruments.   (3)

   (b)   Write freehand the following, in single stroke (Capital and lower case) letters: Alphabets (Uppercase & Lower case) and Numerals 0 to 9 (h =7 mm).   (9)

2. (a)   Draw the projections of a line PQ 100 mm long inclined at 30° to HP and 45° to VP. Point P is 20 mm above HP and in VP. Also, determine the apparent length and inclinations.   (6)

   (b)   A point B is 45 mm above HP and 60 mm behind VP. Draw the projections.   (6)

SECTION - B

3. (a)   Define the pyramids. Draw the figures of various regular pyramids.   (5)

   (b)   A hexagonal pyramid, side of base 24 mm and axis of 50 mm long, rests with one of the edges of its base on HP and its axis is inclined at 30° to HP and parallel to VP. Draw its projections.   (7)

4.   A pentagonal prism, side of base 25 mm and axis 60 mm long, rests with one of edges of its base on HP. Its axis is inclined at 30° to HP and parallel to VP. It is cut by a horizontal section plane passing through the highest corner of base. Draw its views.   (12)

SECTION - C

5.   A pentagonal pyramid, 30 mm edge of base and 65mm height, stands on HP such that an edge of the base is parallel to VP and nearer to it. A section plane perpendicular to VP and inclined at 30° to HP cuts the pyramid passing through a point on axis at a height of 35 mm from the base. Draw the isometric projection of the truncated pyramid, showing the cut surfaces.   (12)

6.   A hexagonal prism of 35 mm side and 65 mm height has a concentric hexagonal hole of 18 mm side . It rests with its base on HP such that two rectangular faces make equal inclination to VP. The prism is cut by a section plane whose vertical trace is inclined at 60° to XY. The section plane bisects the axis of the prism. Draw the sectional top and profile views. Add the true shape of the section.   (12)

SECTION - D

7. (a)   A vertical cylinder of diameter 40 mm and height 60 mm, is cut by a sectional plane inclined at 30° to HP and passing the axis of cylinder at a distance of 30 mm along the axis. Draw the development of the truncated cylinder.   (7)

   (b)   Draw the development of a square pyramid of base edge 30 mm and height 60 mm.   (5)

8. A cylinder of 60 mm diameter and axis 80 mm long stands with its base on HP. It is completely penetrated by a horizontal cylinder of 40 mm diameter and axis 80 mm long such that their axis bisects each other at right angles. The axis of penetrating cylinder is parallel to VP. Draw the projections showing curves of intersection. (12)

SECTION - E

9. (a) Define plane and diagonal scales.

   (b) Classify the intersection of surfaces of solids.

   (c) What is the principle of Development of surfaces?

   (d) What are the truncated solids?

   (e) What do you mean by the regular solids?

   (f) Differentiate between the Isometric projection and Isometric view.

   (g) If a line is parallel to both HP and VP, then what will be the position and dimension of line in front and top view?

   (h) Define the traces. (1½×8=12)