Roll No.: _____

National Institute of Technology, Delhi

Name of the Examination: B.Tech, May 2018

Branch: Electrical and Electronics Engineering (EEE) ..... Semester: II

Course Name: Engineering Visualization
Course Code: MEB 100

Time: 3 Hours ..... Maximum Marks: 50 Marks

Note: (1) Please write your answers in legible hand-writing.
(2) Assume any missing data and clearly mention it.

Section-A

Answer ALL the following questions. [1 mark each]

1A. A line CD 40mm long is in V.P. and inclined to H.P. The top view measures 30mm. The end C is 10mm above H.P. Draw the projections of the line. Determine its inclination with H.P.
2A. A Point B is 30mm above HP and 40mm behind V.P. Draw its projection.
3A. What do you mean by Auxiliary Inclined Plane (AIP) and Auxiliary Verticle Plane (AVP)? Why do we need them?
4A. A pentagonal prism with side of base 30mm and axis 60mm long is resting on its base on H.P. such that one of its rectangular faces is parallel to V.P. and 15mm away from it. Draw the projections of the prism.
5A. Draw, by free hand, the missing TOP View (see Figure (1)).

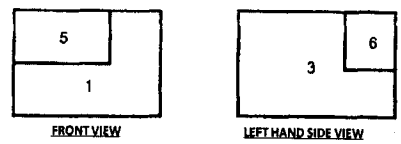

Figure 1: Problem figure for question number 5A.

6A. Draw, by free hand, the Isometric Projections (see Figure (2)).

7A. What are the basic elements of the language of Engineering Drawing/Visualization?
8A. What Engineering Drawing/Graphics/Visualization is not about? Explain the type of pencils to be used with examples.
9A. Fill in the blanks:
1. When a line is perpendicular to VP, its ——- is a point.
2. When a line is inclined to and parallel to ——- its front view represents the true length

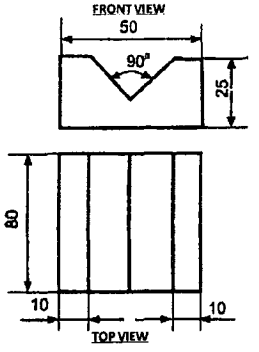

Figure 2: Problem figure for question number 6A.

of the line.
10A. How do we know from the projection of a line that it is contained in a profile plane?

Section-B

Answer ANY FOUR questions. [5 marks each]
1B. A plot of land is in the shape of a parallelogram 20m × 15m, the angle between two sides being 55°. Inscribe an elliptical flower bed in it.
2B. On a cricket ground, the ball thrown by a fielder reaches the wicket-keeper following parabolic path. Maximum height achieved by the ball above the ground is 30m. Assuming the point of throw and the point of catch to be 1m above the ground, draw the path of the ball. The distance between the fielder and the wicket-keeper is 70m.
3B. The distance between the projectors of H.T. and V.T. of line AB is 25mm. H.T. is 20mm above reference line (xy) and V.T. is 10 mm above xy. End A is 15 mm above HP. Draw the projections and find true length when plan of the line measures 60mm and end B is in first quadrant.
4B. A small object is placed in a room at a distance of 6m from the side wall, 8m from the end wall and 11m above the floor level. A thin wire is stretched to this object from the corner of the room where the floor meets the two walls. Ascertain graphically the length of the wire and its slope.
5B. On a survey map, a line of 22cm long represents a distance of 440 metres. Draw a diagonal scale to measure and mark a distance of 187 m on the scale. The scale on the map should be able to read upto a single metre.
6B. Draw the FRONT missing view (see figure 3).

Section-C

Answer ANY TWO questions. [10 marks each]

1C. 1).A thin circular lamina of 80mm diameter is resting on a point A of its circumference in the H.P. with its plane inclined at 40° with H.P. Draw the projections if the diagonal AB is in a plane perpendicular to both the reference planes. Assume the planes in the first quadrant.
2).The front-view and top-view of a right circular cylinder 50mm diameter of base and 100mm long; when its axis is inclined at 50° to H.P and 25° to V.P. Assume the object in first quadrant.

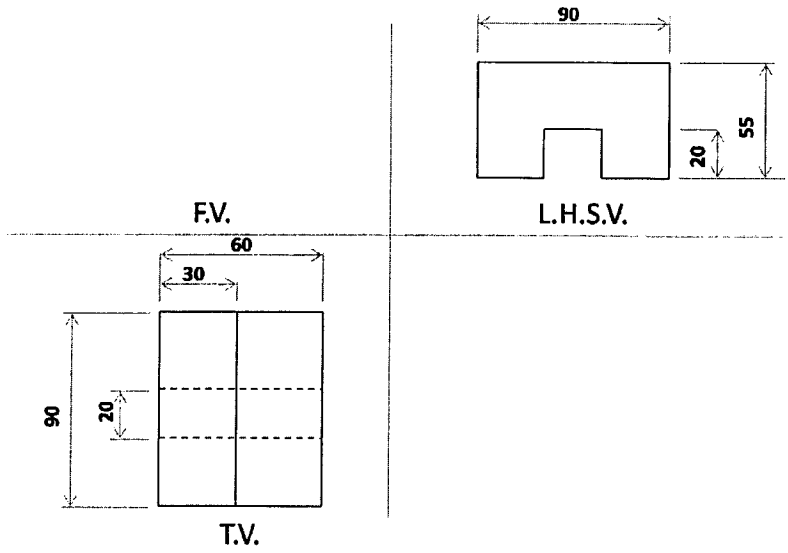

Figure 3: Problem figure for question number 6B.

2C. Draw the isometric view (see Figure (4)). Use isometric scale.

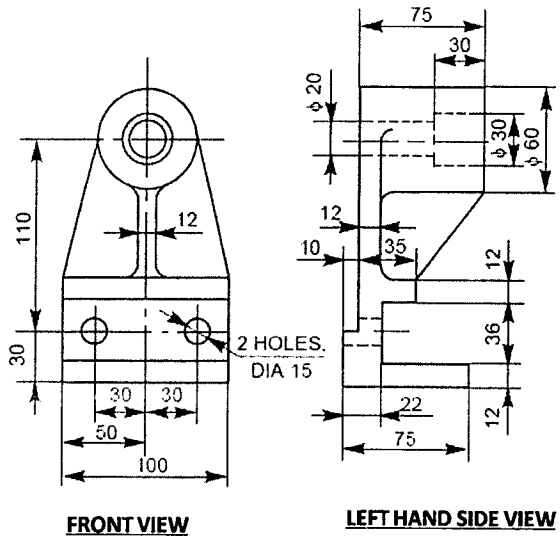

Figure 4: Problem figure for question number 2C.

3C. Draw the orthographic projections using First-Angle Method (refer Figure (5)):
4C. Draw the orthographic projections using THIRD-Angle Method (refer Figure (6)):

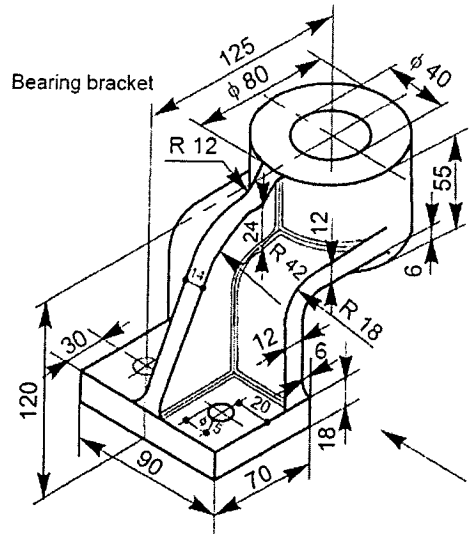

Figure 5: Problem figure for question number 3C.

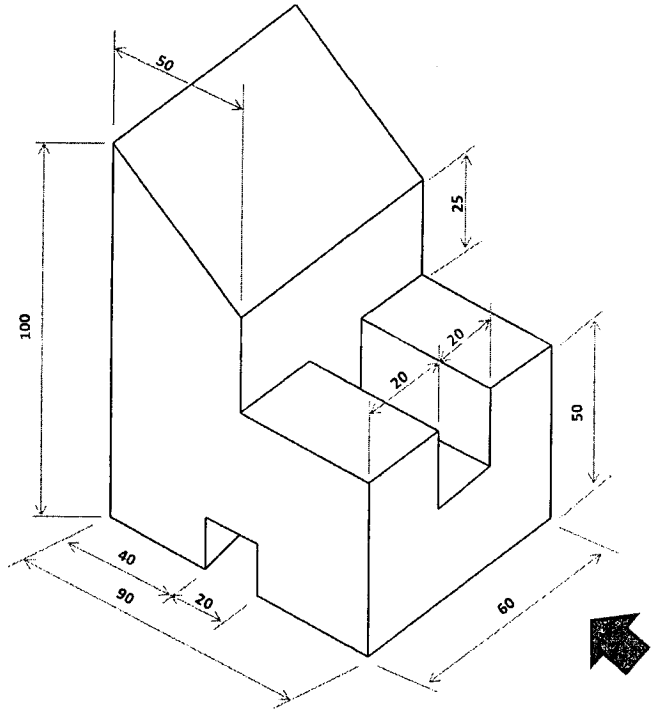

Figure 6: Problem figure for question number 4C.