BTS(C) – I – 06 – 006 (A)

B.Tech. Degree I and II Semester (Combined) Examination, June 2006

CE/EC/IT/EB 106 ENGINEERING GRAPHICS

(For Regular students – 2005 Admissions only)

Time: 3 Hours | Maximum Marks: 100

I a) A room of 1000 m^3 volume is represented by 125 cm^3 on a model. Draw a plane scale long enough to read 30m. What is the R.F? On the scale indicate a distance of 19.5 m. (8)

b) Construct a backward reading vernier of R.F= $\frac{1}{2.5}$ to show decimeters, centimeters and millimeters long enough to read 4 decimetres. Mark on the scale lengths 2.26dm and 0.57dm. (12)

OR

II a) Draw a hyperbola given transverse axis = 80mm, single ordinate = 60mm and abscissa = 48mm. (10)

b) A wheel of diameter 40mm rolls on another fixed wheel of 180mm diameter externally without slipping. Draw the curve traced by the point P on the rolling wheel for one revolution such that it is 30mm away from its centre and situated diametrically opposite to the point of contact in the starting position. (10)

III a) Draw the projections of a straight line AB 100mm long inclined at 30° the ground and 45° to the VP. The end A is on the HP and end B is in the vertical position. Also locate its traces. (10)

b) Draw the projections of a line AB, 90mm long, its midpoint M being 50mm above the HP and 40mm in front of VP. The end A is 20mm above the HP and 10mm in front of the VP. Show the traces and the inclinations of the line with HP and VP. (10)

OR

IV a) ABCD is a rhombus of diagonals AC 100 mm and BD 70mm. Its corner C is on HP and the plan of the rhombus is a square. Draw its projections and find its inclination with HP. Also mark HT and VT of the plane. Assume that centre of rhombus is 40mm above HP and 50mm in front of VP. (10)

b) A rectangular lamina of 50mm x 90mm rests on HP on one of its shorter edges. The lamia is rotated about the edge on which its rests till it appears as a square in the top view, the edge on which the lamina rests being parallel to both HP and VP. Draw its projections and find its inclinations with HP and VP. (10)

V Draw the projections of a pentagonal pyramid 40mm side and axis 70mm long when it is resting on one of its base edges with the axis making an angle 30° with HP and 45° with VP. (20)

OR

VI A cone, 80mm base diameter, axis 80mm long, is resting upon its base on HP. It is cut by a vertical plane, the HT of which makes an angle of 45° with the reference line and is 16mm away from the axis. Draw the sectional front view and true shape of section, if the apex is retained after cutting the solid. (20)

(Turn Over)

VII Draw the development of the lateral surface of the right circular cylinder of diameter 44mm and height 70mm. The cylinder is placed on HP. A section plane, passing through the geometrical centre of the top face of the cylinder perpendicular to VP and inclined at 45° to HP, cuts off the top portion of the tube. A similar sectional plane making an angle of 30° to HP in the opposite direction cuts the axis at a height of 14mm from the base. (20)

OR

VIII A vertical square prism base 50mm side has its faces equally inclined to VP. It is completely penetrated by another square prism of base 30mm side, the axis of which is parallel to both the planes and is 6mm away from the axis of vertical prism and nearer to VP. The faces of the horizontal prism are equally inclined to the VP. Draw the projections of the solids showing lines of the intersection. Assume the length of both the prisms to be 100mm. (20)

IX Draw the isometric projection of a hexagonal prism with a hemispherical top, touching all sides. The sides of the hexagonal prism are each 6cm and height 60cm. (20)

OR

X Draw the perspective projection of a pentagonal prism of side 25 mm and length 50 mm, lying on one of its rectangular faces on the ground plane and one pentagonal face touching the picture plane. The station point is 55mm in front of the picture plane and lies in the central plane which is 75mm to the left of the centre of the prism. Station point is 30mm above the ground plane. (20)

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