Roll No. .....

EB–105

B. E. (Second Semester) (CGPA) EXAMINATION, 2011-12

(Civil Engg. Branch)

ENGINEERING GRAPHICS

(CE–205)

Time : Three Hours

Maximum Marks : 60

Note : Attempt all questions. All questions carry equal marks.

1. (a) A rectangular plot of area 25 km^2 is drawn on a certain map by a similar rectangle of area 1 cm^2. Draw a plain scale to show kms and long enough to measure upto 80 kms. Show a distance of 53 kms on it. 6

(b) Draw an involute of a circle of 40 mm diameter. 6

Or

(a) On a map the distance between two points is 14 cm. The real distance between them is 20 km. Draw a diagnoal scale of this map to read kms and hectometers and to measure upto 25 kms. Show a distance of 17·6 kms on this scale. 6

(b) A fountain jet discharges water from ground level at an inclination of 45° to the ground. The jet travels a horizontal distance of 7·5 metres from the point of

P. T. O.

discharge and falls on the ground. Trace the path of the jet. 6

2. (a) A point is 20 mm below the H.P. and lies in third quadrant. Its shortest distance from *xy* line is 35 mm. Draw its projections. 4

(b) The top view of a 75 mm long line measures 55 mm. The line is in he V.P., its one end being 25 mm above the HP. Draw its projections and determine its inclination with the H. P. 8

Or

The distance between the end projectors of a line AB is 70 mm and the projetors through the traces are 110 mm apart. One end of the line is 10 mm above the H. P. If the top view and front view of the line make 30° and 60° angles with *xy* line respectively, draw the projections of the line and determine :

(i) the traces

(ii) the angles with the H.P. and the V.P.

(iii) the true length of the line.

Assume the line is in first quadrant. 12

3. A regular hexagon of 40 mm side has a corner in the H.P.. Its surface is inclined at 45° to the H.P. and top view of the diagonal through the corner which is in the H.P. makes an angle of 60° with the V.P. Draw its projections. 12

Or

A hexagonal pyramid, base 25 mm side and axis 55 mm long, has one of its slant edges on the ground. A plane containing that edge and the axis is perpendicular to the ground and inclined at 45° to the V.P. Draw its projection when apex is nearer to the V.P. 12

4. A cylinder of 40 mm diameter, 60 mm height and having its axis vertical, is cut by a section plane perpendicular to the V.P., inclined at 45° to the H.P. and intersecting the axis 32 mm from the base. Draw sectional view and true shape of the section. 12

Or

Draw the projections of a cone resting on the ground on its base and show on them, the shortest path by which a point P, starting from a point on the circumference of the base and moving around the cone will return to the same point. Base of the cone is 65 mm diameter and axis 75 mm long. 12

5. A sphere of 40 mm diameter is resting centrally on the top of a square prism base 30 mm and axis 20 mm long. Draw the isometric view of the two solids. 12

Or

Isometric view of an object is shown below. Draw its front view, top view and side view. All dimensions are in mm. 12