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BE–105

B. E. (First Semester) EXAMINATION, Dec., 2010

(Grading System)

(Common for all Branches)

ENGINEERING GRAPHICS

Time : Three Hours

Maximum Marks : 70

Minimum Pass Marks : 22 (D Grade)

Note : Attempt *five* questions in all selecting *one* question from each Unit. All questions carry equal marks.

Unit–I

1. (a) Construct a scale to be used with a map, the scale of which is 1 cm = 40 m. The scale should read in metres and maximum up to 500 m. Mark a distance of 456 m on it. 7

   (b) A wheel 50 mm dia. rolls on a straight road surface without slip. Trace the path of point of contact for one complete revolution of the wheel. 7

Or

2. (a) A rectangular plot of land of area 16 sq. m is represented on a map by a similar rectangle of 1 square centimetre. Calculate the R. F. of scale and construct plain scale to read metres and long enough to measure upto 60 m. 7

P. T. O.

(b) A ball thrown from the ground level reaches a maximum height of 5 m and travels a horizontal distance of 11 m from the point of projection. Trace the path of the ball. 7

Unit – II

3. The distance between the projectors of two ends of a straight line is 40 mm. One end is 15 mm above H.P. and 10 mm in front of the V.P. The other end is 40 mm above H.P. and 40 mm in front of V.P. Find the true length and true inclination of the line. 14

Or

4. A line AB is inclined at 40° to H.P. It's one end A is 25 mm above H.P. and 30 mm in front of V.P. The top veiw of the line is 70 mm and is inclined at 30° to *xy*. Draw the projections of the line and determine its true length and inclination with V.P. 14

Unit – III

5. (a) Draw the projections of a circle 60 mm dia resting on V.P. on a point on the circumference. The plane is inclined at 45° to V.P. and perpendicular to H.P. The centre of the plane is 30 m above H.P. 7

(b) A square pyramid of side of base 30 mm and axis 50 mm long is freely suspended from a corner of its base. Draw its projections. 7

Or

6. (a) A regular hexagonal plate of 45 mm side has a corner on H.P. and it's surface is inclined at 45° to H.P. Draw the projections when the diagonal through the corner which is on H.P. makes 30° with the V.P. 7

(b) Draw the projections of a cone of base 50 mm dia. and altitude 60 mm lying on one of its generators on H.P. when the top veiw of the axis makes an angle of 30° with *xy*. 7

Unit – IV

7. (a) A hexagonal pyramid, side of base 30 mm and axis 60 mm long rests with its base on H.P. and one of the edges of its base is parallel to V.P. It is cut by a horizontal section plane at a distance of 30 mm above the base. Draw the front and sectional top views. 7

(b) A cylinder of 45 mm base dia. and 55 mm long axis rests with its base on H.P. It is cut by a plane perpendicular to V.P. inclined at 60° to H.P. and passing through a point on the axis 12 mm from its top. Draw the top view and development of lateral surface of the truncated cylinder. 7

Or

8. (a) A cylinder 50 mm dia. and 70 mm long is resting on H.P. with its axis inclined at 30° to H.P. and parallel to V.P. A section plane inclined at 45° to V.P. passes through the axis at 25 mm from one end of it. Draw the project of the cut solid. 7

(b) A pentagonal pyramid side of base 30 mm and height 52 mm stands with its base on H.P. and an edge of the base in parallel to V.P. It is cut by a plane perpendicular to V.P. and inclined at 40° to H.P. and passing through a point 30 mm above the base. Draw the development of the lateral surface of the truncated pyramid. 7

P. T. O.

Unit – V

9. A cone of base diameter 50 mm and axis 60 mm rests with its base on H.P. A section plane perpendicular to V.P. and inclined at 30° to H.P. passes through the axis at a distance of 25 mm above base. Draw the isometric projections of the truncated cone. 14

Or

10. (a) What are the advantages and disadvantages of CAD ? 6

(b) Explain the following commands in brief : 8

(i) Move

(ii) Array

(iii) Chamfer

(iv) Hatch