Total No. of Questions : 10] [Total No. of Printed Pages : 4

Roll No. 0502ME09107

BE–105

B. E. (First/Second Semester) EXAMINATION, June, 2010

(Common for all Branches)

ENGINEERING GRAPHICS

(BE – 105)

Time : Three Hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : (i) Attempt *five* questions selecting *one* question from each Unit.

(ii) Draw in first angle projection unless specified otherwise.

(iii) Assume suitably missing and misprint data if any.

Unit – I

1. (a) Construct a scale to be used with a map; the scale of which is 1 cm = 500 m. The maximum length to be read is 5 km. Mark on the scale a distance of 3·85 km. 8

(b) Construct a hyperbola with the distance between the focus and the directrix as 50 and eccentricity as 3/2. Also draw normal and tangent to the curve at a point 30 mm from the axis. 8

Or

2. (a) A rectangular plot of land of area 16 sq. m is represented on a map by a similar rectangle of 1

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square centimetre. Calculate the R. F. of the scale of the map. Construct a plain scale to read metres and long enough to measure upto 60 m. Indicate a distance of 45 m on the scale. 8

(b) A coir is unwound from a drum of 30 mm diameter. Draw the locus of the free end of the coir for unwinding through an angle of 360°. Draw also a normal and tangent at any point on the curve. 8

Unit – II

3. (a) State the quadrants in which the following points are located : 4

(i) A – front view and top view are above *xy*.

(ii) B – front view below *xy* and top view above *xy*.

(iii) C – front view and top view below *xy*.

(iv) D – front view above *xy* and top view below *xy*.

(b) A line PQ of 80 mm long has its end P, 15 mm from both H. P. and V. P. The other end Q is 40 mm above H. P. and 50 mm in front of V. P. Draw the projections of the line and determine the inclinations of the line with H. P. and V. P. 12

Or

4. The front view of a line AB is 50 mm long and it makes an angle of 35° with *xy*. The point A lies 10 mm above H. P. and 25 mm behind V. P. The difference between the distances of A and B from V. P. is 25 mm. The line AB is in second quadrant. Draw the projections of the line and determine its true length and inclinations with the H. P. and V. P. 16

Unit – III

5. (a) A semicircular plate of 80 mm dia. has its straight edge on V. P. and inclined at 30° to H. P., while the surface of the plate is inclined at 45° to V. P. Draw the projection of the plate. 8

   (b) A hexagonal prism, side of base 20 mm and axis 48 mm long, rests with its base on H. P. such that an edge of the base is parallel to V. P. Draw the projections of the prism on an auxilliary plane which makes an angle of 60° with the H. P. 8

Or

6. (a) A pentagon of 30 mm side has one corner on H. P. Its plane is inclined at 60° to V. P. and perpendicular to H. P. Draw the projection of the pentagon. 8

   (b) A hexagonal pyramid of side of base 25 mm and axis 60 mm long, is resting on an edge of the base on H. P. Draw the projections of the solid when the axis makes an angle of 45° with V. P. and the base of the solid is nearer to V. P. 8

Unit – IV

7. (a) A cylinder of diameter of base 40 mm and axis 55 mm long is resting on its base on H. P. It is cut by a section plane perpendicular to V. P. and inclined at 45° to H. P. The section plane passes through the top end of an extreme generator of the cylinder. Draw the development of the lateral surface of the cut cylinder. 8

   (b) A vertical cylinder of 60 mm dia. is penetrated by a horizontal square prism of 35 mm side. The axes of the two solids intersect each other. A rectangular face of the prism is inclined at 60° to the V. P. Draw the lines of intersection. 8

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Or

8. (a) A pentagonal pyramid side of base 35 mm and axis 60 mm long rests with its base on the H. P. such that one of the edges of the base is perpendicular to the V. P. A section plane perpendicular to H. P. and parallel to V. P. cuts the pyramid at a distance of 20 mm from the corner of the base nearer to the observer. Draw its top and sectional front view. 8

(b) A cone base 50 mm dia. and axis 60 mm long rests with its base on H. P. A section plane perpendicular to V. P. and inclined at 45° to H. P. bisects the axis of the cone. Draw the development of the lateral surface of the remaining portion of the cone. 8

Unit – V

9. (a) State three advantages of computer aided drafting. 3

(b) State any *four* significant EDIT commands and its function. 8

(c) Write the prompt sequence for drawing a rectangle of 60 mm × 40 mm with the help of line command. 5

Or

10. Draw the isometric view of a sphere of radius 20 mm which rests centrally on top of a square prism of base 50 mm and height 60 mm. 16