RGPV BE105 Engineering Drawing Dec 2008 Question Paper
BE (First/Second) Semester Exam
(Common to all Branches)

Time: 3 hrs

Maximum Marks: 100

Minimum Marks: 35

Note: (i) Answer **ONE** question from each unit.

(ii) Assume misprint/missing data suitably.

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

(iv) Due credits will be given for neatness, quality of lines and lettering.

Unit-I

1. a) A map is to be drawn with RF 1:40. Construct a scale to read metres, decimeters and centimeters and long enough to measure upto 6 m. Show on it a distance of 3.84 m. 8 marks

Ans: Problem 4.11 with data of problem 4.1, ED - Basant Agrawal, TMH.

1. b) A point moves in a plane in such a way that the sum of its distances from two fixed points 60 mm apart is 90 mm. Name and draw the locus of this point around the fixed points. 8 marks

Ans: Problem 4 Page 5.33, ED - Basant Agrawal, TMH.

OR

2. a) A cube of 5 cm side represents a tank of 8000 cubic metre volume. Find the RF and construct a scale to measure upto 60 m and mark on it a distance of 47 m. Indicate RF of the scale. 8 marks

Ans: Problem 24 Page 4.25 of ED - Basant Agrawal, TMH.

2. b) A point moves along a bar at an uniform speed. The bar rotates about its end O at an uniform speed. Name and construct the path of a point P starting from a position 20 mm away and move upto 60 mm away from the fixed end of bar during its one revolution. Draw tangent at a point 45 mm away from O. 8 marks

Ans: Archemedian spiral has to be drawn for one convolution having shortest and greatest radii 20 mm and 60 mm respectively. Also draw tangent and normal to the curve. Refer problem 6.6 Page 6.6, ED - Basant Agrawal, TMH.

Unit-II

3. a) A line AB inclined at 40º to HP has its front view 60 mm long and inclined at 60º to the reference line. One end is 20 mm away from both the reference planes in first quadrant. Locate the position of end B. Find true length and true inclination of the line with VP. Also show its traces. 8 marks

Ans: Similar to problem 15 Page 9.47, ED - Basant Agrawal, TMH.

3. b) A pentagonal lamina of 30 mm side rests on HP on one of its corners with its surface perpendicular to VP and inclined at 30º to HP. Draw its projections when the side opposite to the corner in HP is parallel to VP. 8 marks

Ans: Problem 14 Page 10.13 of ED - Basant Agrawal, TMH.

OR

4. a) The front view of a 75 mm long straight line AB measures 45 mm, while its top view measures 60 mm. Its end A lies 15 mm below HP and 20 mm behind VP, while the other end lies in first quadrant. Draw the projections of AB and obtain true inclinations of AB with the reference planes. 8 marks
Ans: Problem 12 Page 9.58, ED - Basant Agrawal, TMH.

4. b) The top view of a lamina whose surface is perpendicular to VP and inclined at an angle of 45º to HP appears as a regular hexagon of 30 mm side, having a side parallel to the reference line. Draw the projections of plane and obtain its true shape. 8 marks
Ans: Problem 24 Page 10.14 of ED - Basant Agrawal, TMH.

Unit-III

5. a) A square prism of base side 25 mm and height 60 mm, is kept on HP with its axis vertical and two base sides equally inclined to VP. It is cut by a section plane whose VT makes an angle of 30º with the reference line bisects the axis. Draw sectional top view and true shape of section. 8 marks
Ans: Refer Fig. 12.49 Page 12.38 of ED - Basant Agrawal, TMH.

5. b) A right regular hexagonal pyramid of base side 25 mm and height 70 mm has a base edge in HP and slant edge in VP. Draw projections of the pyramid. Also draw another top view on an auxiliary plane inclined at 30º to HP. 8 marks
Ans: Refer article 11.22 Projections of solids on auxilary inclined plane of ED - Basant Agrawal, TMH.

OR

6. A right regular hexagonal pyramid of base 30 mm side and axis 75 mm long has one of its slant edges in the HP and the vertical plane containing this edge and axis is inclined at 30º to the VP. Draw the projection when apex is 20 mm in front of VP.
It is now cut by a section plane whose HT makes an angle of 60º with the reference line. Draw sectional view and true shape of section when the section plane bisects the axis. 8 marks
Ans: Problem 11.38 Page 11.39, ED - Basant Agrawal, TMH, and thereafter proceed with sections of solids.

Unit-IV

7. a) The isometric view of an object is shown in Fig. 1. Draw its three views looking from the directions shown. 8 marks
Ans: Refer Chapter 15 isometric projections of ED - Basant Agrawal, TMH.

OR

7. a) Draw isometric projection of a spherical ball of 40 mm diameter resting centrally on the top of a pentagonal disc of base side 30 mm and height 50 mm. 8 marks
Ans: Refer problem 15.21 Page 15.15 of ED - Basant Agrawal, TMH

7. b) Develop the lateral surface of a right regular hexagonal prism of base 35 mm side and height 75 mm, kept vertically with a base side perpendicular to VP and having a cylindrical hole of 40 mm diameter drilled centrally with the axis of hole being perpendicular to VP. 8 marks
Ans: Problem 3 Page 13.36 of ED - Basant Agrawal, TMH.

OR

8. A vertical circular pipe of 60 mm diameter has a branch of 40 mm diameter at right angles with their axes in the same plane, which is parallel to the reference VP. Draw the curve of intersection. Also develop the surface of two pipes in the region of intersection. 16 marks

Ans: Refer problem 14.6 Page 1.7 of ED - Basant Agrawal, TMH:

Unit-V

9. a) Discuss salient features of CAD. 4 marks

Ans: Refer Page 18.1 of ED - Basant Agrawal, TMH.

9. b) State the series of AutoCAD command steps to draw a rectangle of size 100 mm × 60 mm with the help of line commands. 4 marks

Ans: Problem 22 Page 18.45, ED - Basant Agrawal, TMH.

9. c) Explain any four methods of drawing an arc in AutoCAD. 8 marks

Ans: Problem 19 Page 18.44, ED - Basant Agrawal, TMH.

OR

10. Fill in the blanks: 4 marks

a) The command used to make a mirror copy of the selected object is named as *mirror*.

b) The movement of pick box and cross hairs is guided by the *mouse.*

c) *Limits* command creates an artificial and invisible boundary for the drawing.

d) The standard tool bar contains commonly used *draw* and *edit*.

10. b) Name various methods of locating a point in CAD and explain any one of them. 6 marks

Ans: Problem 11 Page 18.44, ED - Basant Agrawal, TMH.

10. c) State the series of command steps required to reproduce the object shown in fig. 2. with the help of line command using rectangular coordinate system. 6 marks

Ans: Problem 19 Page 18.44, ED - Basant Agrawal, TMH.