Thursday, August 6, 2009

GTU 110013 Engineering Graphics Dec 2008 /Jan 2009 Question Paper

BE First Semester Exam
(Common to all Branches)
Time: 3 hrs
Maximum Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Don't rub Construction/Projection lines after completion of drawing.
5. Any sort of electronic gadgets are strictly prohibited.

1. a) Draw Figure 1 in Half Scale. 7 marks
Ans: Can be done with ease
1. b) (i) Explain Importance of section in brief. 2 marks
Ans: To show internal details. Refer page 12.1 of ED - Basant Agrawal, TMH.
(ii)An elliptical plane 120 mm x 60mm rest on HP in such a way that it looks
Circular in Plan. Determine its inclination with HP. 4 marks
Ans: Refer problem 10.11 page 10.11 of ED - Basant Agrawal, TMH.
1. c) A cubical tank of 1 m × 1 m × 1 m was required to be fabricated for
storing water. In this regard, Isometric Projection of the mentioned
specification was prepared and supplied to the fabricator. The fabricator
fabricated the tank considering it as Isometric Drawing. Determine the reduced
water storing capacity of the fabricated tank. 6 marks
Ans: Remove the area equal to isometric projection from the isometric view.

2. a) Define R.F. Divide a line PQ 100 mm long into six equal parts. 3 marks
Ans: Refer article 4.3 page 4.2 and problem 3.5 page 3.4 of ED - Basant
Agrawal, TMH.
2. b) Explain Systems of Dimensioning in brief. 4 marks
Ans: Refer article 2.12 and 2.15 of ED - Basant Agrawal, TMH.
2. c) The foci of an ellipse are 120 mm apart and the minor axis is 70 mm long.
Draw the ellipse by concentric circle method. 7 marks
Ans: Refer problem 5.34 page 5.26 of ED - Basant Agrawal, TMH.
                                    OR
2. c). Draw and name the curve traced by a point on the perimeter of 60 mm
diameter circle if it rolls by one revolution outside the circle with 160 mm
diameter. 7 marks
Ans: Refer problem 6.2 page 6.2 of ED - Basant Agrawal, TMH.
3. a) Define "Loci" of point. In a slider crank mechanism, the connecting rod is
160 mm and crank is 40 mm in length. The other end point of connecting rod on

the slider moves along a straight line passing through centre of crank rotation. Trace the locus of i) Any point on the slider and ii) Midpoint 'X' of the crank. 7 marks

Ans: Refer problem 6.19 page 6.20 of ED - Basant Agrawal, TMH.

3. b) A line AB 75 mm long is inclined at an angle of 45° to HP and 30° to VP. One of its end point A is in HP as well as VP. Determine its apparent inclination with VP. 7 marks

Ans: Refer problem 9.15 page 9.15 of ED - Basant Agrawal, TMH.

OR

3. a) Define "Loci" of point. In a slider crank mechanism, the connecting rod is 160 mm and crank is 40 mm in length. The other end point of connecting rod on the slider moves along a straight line passing through centre of crank rotation. Trace the locus of midpoint 'Y' of the connecting rod. 7 marks

Ans: Refer problem 6.19 page 6.20 of ED - Basant Agrawal, TMH.

3. b) A line AB 75 mm long has its end point A 15 mm above HP and 10 mm in front of VP and end point B 45 mm above HP and 50 mm in front of VP. Determine true inclination of line AB with HP and VP. 7 marks

Ans: Refer problem 9.24 page 9.27 of ED - Basant Agrawal, TMH.

4. a) An isosceles triangular plane XYZ having its base XY = 50 mm and altitude 60 mm is resting on HP on its base XY with its surface making an angle of 45° to HP. The base XY which is in HP makes an angle of 60° to VP. Draw projection of plane. 7 marks

Ans: Refer problem 1 page 10.26 of ED - Basant Agrawal, TMH.

4. b) A Square pyramid, side of base 50 mm and axis length 60 mm is kept on HP on one of its base edges in such a way that its axis makes an angle of 45° with HP. If the base edge which is on HP makes an angle of 45° with VP, draw the projections when apex is 30 mm away from VP. 7 marks

Ans: Refer problem 11.27 page 11.30 of ED - Basant Agrawal, TMH.

OR

4. a) A Pentagonal plane of side 50 mm is kept on the HP on one of its side in such a way that its surface makes an angle of 45° with HP. Draw the projection of plane when side which is in HP is inclined at 60° with VP in such a way that nearest corner point is at a distance of 20 mm from VP. 7 marks

Ans: Refer problem 10.13 page 10.15 of ED - Basant Agrawal, TMH.

4. b) A cone with base circle diameter 60 mm and axis length 75 mm is kept on its base on the ground. It is cut by a sectional plane perpendicular to HP and inclined at 60° to VP at a distance of 8 mm away from the top view of axis. Draw sectional elevation and true shape of the section. 7 marks

Ans: Refer problem 12.26 page 12.27 of ED - Basant Agrawal, TMH.

5. a) A square pyramid made up of Aluminium sheet with side of base 50 mm and axis length 60 mm is kept on HP on a corner of its base with its axis inclined to HP at an angle of 45° and parallel to VP. It is cut by a plane perpendicular to both HP and VP and passing through the corner on HP. Develop the surface of the pyramid with portion containing apex. 7 marks

Ans: Refer problem 13.10 and 13.33 of ED - Basant Agrawal, TMH.

5. b) Draw Elevation and Left Hand Side View of Figure 2 according to First

Angle projection method. 7 marks

Ans: Refer article 7.15 page 7.10 of ED - Basant Agrawal, TMH.

OR

5. a) A cone made up of Aluminium sheet with base circle diameter 70 mm and axis length 75 mm is kept on its base on the ground. A circular hole of 30 mm diameter is cut through the cone such that its axis remains perpendicular to VP, 10 mm to the right of axis of cone and 25 mm above the base of cone. Develop the surface of cone. 7 marks

Ans: Refer problem 13.29 and 13.34 of ED - Basant Agrawal, TMH.

5. b) Draw Elevation and Plan of Figure 2 according to Third Angle projection method. 7 marks

Ans: Refer article 7.15 page 7.10 of ED - Basant Agrawal, TMH.