AR13 **Set-02**

Code: 13BS1005

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech II Semester Supplementary Examinations, October, 2014
ENGINEERING CHEMISTRY
(Common to CE, ME, CSE & IT)

Time: 3 hours **Max.Marks:70**

PART-A

Answer all questions **[10x1= 10M]**

1. (a) What are plastisizers? Give one example.
   (b) Write structural formulas of starting chemicals of polyester.
   (c) Write the general formula of sodium zeolite.
   (d) Write any two advantages of ion exchange method over soda-lime method.
   (e) What is meant by reforming of gasoline?
   (f) What type of oxide layer is expected to form when molybdenum metal is exposed to air?
   (g) What is Pilling-bedworth rule?
   (h) Mention any two functions of lubricant.
   (i) Give examples for two and three dimensional nano materials.
   (j) Write the principle of chemical vapor deposition.

PART-B

Answer one question from each unit **[5x12M=60M]**

Unit-I

2. a. Explain different types of polymerizations with suitable examples. 4M
   b. Discuss the manufacturing of Portland cement. 8M

(OR)

3. a. Write notes on compounding of plastics. 6M
   b. Write preparation, properties and uses of i) Teflon and ii) PVC 2x3=6M

UNIT-II

4. a. A water sample contains 2.4mg magnesium sulphate per 100ml water. Calculate hardness in ppm. 3M
   b. Discuss various disinfection methods of water . 9M

(OR)

5. a. Describe the reverse osmosis process of softening water. 4M
   b. What are ion exchange resins? Discuss their application in softening water. How spent resins are regenerated? 5M
   c. 100ml water sample require 10 ml 0.1M EDTA solution with EBT indicator. Calculate its hardness 3M

UNIT-III

6. a. Explain electrochemical theory of corrosion and differentiate wet and dry Corrosion. 8M
   b. Discuss the role of inhibitors in reducing corrosion. 4M

(OR)

7. a. What is galvanic series? In which way it is superior to electrochemical series in predicting corrosion. 4M
   b. Write notes on differential aeration corrosion. 4M
   c. What is cathodic protection? Write short notes on sacrificial anodic method. 4M

UNIT-IV

8. a. Describe the manufacture of gasoline by Fisher-Tropsch method. 6M
   b. Define and write significance of i) Cloud point and Pour point ii) Viscosity index. 6M

(OR)

9. a. What is crude oil? Write short notes on refining of crude oil. What are uses of various fractions obtained from crude oil? 7M
   b. Define octane number and cetane number. Write their significance and the ways to improve these values of fuels. 5M

UNIT-V

10. a. Discuss functioning of solar cell. 6M
    b. Write applications of nanotubes. 3M
    c. Mention biomedical and engineering applications of silver nano particles. 3M

(OR)

11. a. Discuss the principles on which green chemistry was developed. 9M
    b. Write short notes on quantum dots and nanowires. 3M

AR13 **SET 02**

Code: 13ME1001

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B. Tech II Semester Supplementary Examinations, October-2014
ENGINEERING DRAWING
(Common to EEE & ECE)

Time: 3 hours **Max Marks: 70**

PART-A

Answer all questions **[10X1=10M]**

1. a) An area of 36 sq.km is represented by 144 sq.cm on a map. What is the RF?
   b) Define eccentricity
   c) The major and minor axes of an ellipse are 100 mm and 60 mm respectively. What will be the distance of its foci from the end of the minor axis?
   d) Name the line, joining the front view and top view of a point.
   e) Name the point, at which the line (extended if necessary) intersects the V.P
   f) When a plane is perpendicular to a reference plane its projection on that plane is _____
   g) Name the remaining part of a pyramid if it is cut by a plane parallel to its base removing the apex
   h) If a thin set-square is kept perpendicular to both horizontal and vertical planes its true shape is seen in _____ plane.
   i) What is the difference between Isometric view and Isometric projection?
   j) How are the invisible features of an object represented in orthographic projection?

PART- B

Answer one question from each unit **[5X12=60M]**

Unit - I

2. Construct a diagonal scale of RF = 1 : 32000 to show kilometers and long enough to measure upto 400 km. show distances of 257km and 333km.

(OR)

3. Draw an ellipse by oblong method by taking major axis as 100 mm and minor axis as 70 mm.

Unit - II

4. a) A point P is 40 mm from H.P and V.P. Draw the projections of point when it is in first, second, third and fourth quadrant .
   b) Two Point A and B are in the H.P. The point A is 30 mm in front of the V. P., While B is behind the V.P. The distance between their projectors is 75 mm and the line joining their top views makes an angle of 45^0 with xy. Find the distance of the point B from the V.P.

(OR)

5. a) An 80 mm long line is inclined at 60^0 to the V.P and parallel to the H.P. One end of the line is 30 mm above H.P and 10 mm in front of V.P. Draw its projections.
   b) The top view of a 75 mm long line measures 55 mm. the line is in the V. P., its one end being 25 mm above the H.P. Draw its projections.

Unit - III

6. The longest side of a 30^0 -60^0 set square measuring 100 mm is in V.P and 30^0 inclined to H.P while its surface is 45^0 inclined to V.P. Draw its projections.

(OR)

7. A regular pentagon of 30mm side is resting on one of its sides with its surface 45^0 inclined to H.P. Draw its projections when the side in the H.P makes 30^0 with V.P.

Unit – IV

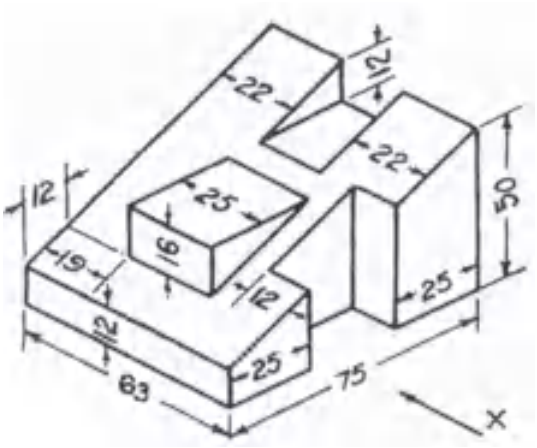
8. A hexagonal prism, base 30 mm side and axis 75 mm long, has an edge of the base parallel to the H.P. and inclined at $45^0$to the V.P. Its axis makes an angle of 60^0 with the H. P. Draw its projections.

(OR)

9. Draw the projections of a cone, base 40 mm diameter and axis 50 mm long, lying on the H.P. on one of its generators with the axis parallel to the V.P.

Unit - V

10. Draw the front view, top view and left hand side view of the block shown in figure shown below.



(OR)

11. Draw the isometric projection of the block whose orthographic projections are shown in figure below.