AR13 Set-02

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech II Semester Regular / Supplementary Examinations, July-2015
ENGINEERING CHEMISTRY
(Common to CE, ME, CSE & IT)

Time: 3 hours   Max.Marks:70

PART-A

Answer all questions   [10x1= 10M]

1. (a) What is addition polymerization?
   (b) Initial set of cement is caused by?
   (c) What is hardness of water?
   (d) What is meant by the term passivity?
   (e) Explain Pilling-Bedworth rule.
   (f) Define octane number.
   (g) Distinguish between flash and fire point.
   (h) What is atom economy?
   (i) What are nanomaterials?
   (j) What is photovoltaic cell?

PART-B

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

Unit-I

2. (a) Distinguish between thermoplastic and thermosetting plastics.
   (b) Explain the formation of PVC. What are its engineering applications?
   (c) How cements are classified? What are the raw materials used for manufacture of
   cement?   [4M+4M+4M]

(OR)

3. (a) Explain injection moulding in detail.
   (b) Write down various reactions take place in rotary kiln during cement manufacturing
   and explain with a neat sketch.   [4M+8M]

Unit-II

4. (a) What is the principle of EDTA method? Describe the estimation of hardness of water
   by EDTA method.
   (b) With the help of a neat diagram describe the reverse osmosis method for the
   desalination of brackish water.   [7M+5M]

(OR)

5. (a) Define carbonate and non-carbonate hardness of water. List the disadvantages of hard
   water.
   (b) What are ion-exchange resins? Discus their application in softening of water. How are
   the spent resins regenerated?   [4M+8M]

Unit-III

6. Write short note on the following.
   (a) Galvanic series
   (b) Concentration cell corrosion
   (c) Sacrificial anodic protection   [4M+4M+4M]

(OR)

7. (a) Discus in detail any four factors affecting the rate of corrosion.
   (b) Give a brief account on corrosion inhibitors.   [8M+4M]

Unit-IV

8. (a) What is meant by cracking of petroleum? Explain with diagram the Fischer-Tropsch
       method of obtaining gasoline.
   (b) Explain the mechanism of thick film lubrication.   [7M+5M]

(OR)

9. (a) Explain the refining process of petroleum.
   (b) Write a short note on viscosity index of a lubricant.   [8M+4M]

Unit-V

10. (a) What is green house effect? What are the disadvantages of it?
    (b) Explain super critical fluid extraction method of green synthesis.
    (c) Write any four principles of green chemistry.   [4M+4M+4M]

(OR)

11. (a) Explain how the solar power plants are useful in harnessing solar energy.
    (b) What are nanomaterials? Give an account of their applications?
    (c) What is green chemistry? Discus the need of green chemistry.   [4M+4M+4M]

AR13   SET 2

Code: 13ME1001

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI (AUTONOMOUS)

I B. Tech II Semester Regular / Supplementary Examinations, July-2015

ENGINEERING DRAWING

(Electronics & Communication Engineering))

Time: 3 hours   Max Marks: 70

<div align="center">PART-A</div>   [10X1=10M]

Answer all questions

1. a) Explain the principle of diagonal scale.
    b) Define representative fraction. What is an enlarging scale?
    c) List out the main differences between first angle projection and third angle projection.
    d) What are solids of revolution?

    e) What is an orthographic projection?
    f) In orthographic projections, the apparent angles are always _____ than the true angles and the apparent lengths are always _____ than the true lengths.
    g) What are the dimensions of the solid that can be seen in the side view?
    h) At what conditions True shape of a plane will get.
    i) The view drawn with the true scale is called isometric _____and that drawn with the use of isometric scale is called isometric _____.
    j) The projections of point A are shown in figure, State its location with respect to the reference planes and the quadrant in which it lies.

1-4
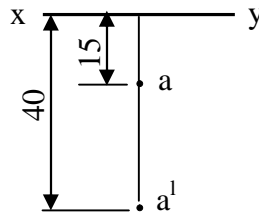
AR13　　　　　SET 2

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

UNIT-I

2. a) The major axis of an ellipse is 100 mm long and the foci are at a distance of 15 mm from its ends. Find the length of the minor axis. Draw the ellipse using concentric circles method. Draw tangent and normal to the curve at a distance of 20 mm from the major axis.

   b) Construct polygon by using any two methods.

(OR)

3. a) The distance between Nagpur and Chandrapur is 156 km. The cities are shown 156 mm apart on a road map. Draw a diagonal scale with this RF and long enough to measure up to 200 kilometers. Mark on it (i) 109 km and (ii) 168 km.

   b) Draw Vernier scale by assuming any suitable data.

UNIT-II

4. a) Draw the projections of a 75 mm long line parallel to both the reference planes. The line is 20 mm behind the VP and 40 mm below the HP.

   b) Draw the projections of a 60 mm long line parallel to the HP and perpendicular to the VP. The line is 10 mm above the HP and one end of the line is 20 mm in front of the VP.

(OR)

5. a) A point 30 mm above xy line is the plan-view of two points P and Q. The elevation of P is 45 mm above the H.P. Draw the projections of the points and state their position with reference to the principal planes and the quadrant in which they lie.

   b) Draw the projections of the following points on a common reference line keeping the distance between their projectors 25 mm apart.

2-4

    i.   Point A is 40 mm above the H.P. and 25 mm in front of the V.P

    ii.   Point B is 40 mm above the H.P. and on the V.P.

    iii.   Point C is 25 mm in front of the V.P. and on the H.P.

    iv.   Point D is 25 mm above the H.P. and 30 mm behind the V.P.

    v.   Point E is on the H.P. and 30 mm behind the V.P.

    vi.   Point F is 40 mm below the H.P. and 30 mm behind the V.P.

    vii.   Point G is 25 mm below the H.P. and 40 mm in front of the V.P.

    viii.   Point H is on the V.P. and 30 mm below the H.P.

UNIT-III

6.   A rectangular plate of 60 mm and 40 mm sides rests on the H.P. on the shortest edge, with its surface perpendicular to the V.P., such that the centre of the plate lies 20 mm above the H.P. and 30 mm in front of the V.P. Draw the projections of the plate and determine angle made by it with the H.P.

(OR)

7.   The top view of a plate, the surface of which is perpendicular to the V.P. and inclined at 60^0 to the H.P. is a circle of 60 mm diameter. Draw its three Views.

UNIT-IV

8.   Draw the projections of a cone, base 50 mm diameter and axis 75 mm long, having one of its generators in the V.P. and inclined at 30^0 to the H.P., the apex being in the H.P.
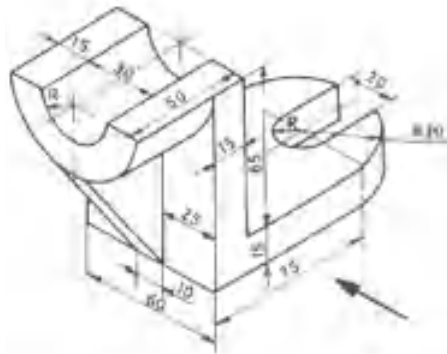
(OR)

9.   A square prism, side of base 40 mm and height 80 mm long rests with its base on HP. Such that one of its rectangular faces is inclined at an angle of 30^0 to VP. Draw its projections.
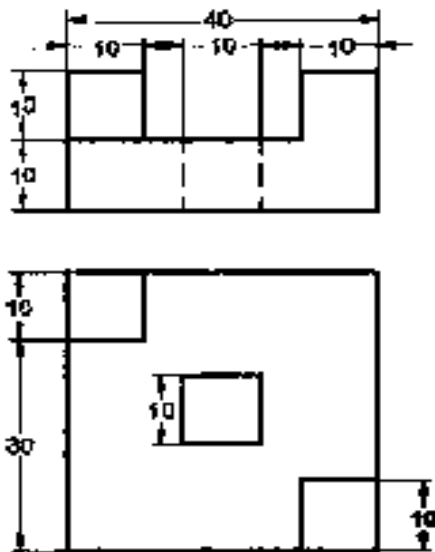
AR13   SET 2

10. Draw the front view, top view and left hand side view of the block shown in Figure 1 shown below.

Figure 1

(OR)

11. Draw the isometric projection of the component shown in three views in Figure 2.

Figure 2

4-4

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