AR13

Code: 13BS1005 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech II Semester Regular / Supplementary Examinations, May-2016

ENGINEERING CHEMISTRY
(Common to CE, ME, CSE & IT)

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

PART – A

Answer all questions **[10 x 1=10M]**

1. (a) Bakelite is hard and brittle . Give reason?
   (b) What are the classifications of cement?
   (c) How the exhausted ion exchange resin beds are regenerated?
   (d) Distinguish between temporary hardness and permanent hardness?
   (e) What is dry corrosion?
   (f) Impure metal corrodes faster than pure metal under identical conditions. Give reason.
   (g) Define octane number.
   (h) Give any two functions of lubricant.
   (i) What is green chemistry?
   (j) Write any two applications of nano particles.

PART-B

Answer one question from each unit **[5 x 12=60M]**

UNIT-I

2. a) Give the differences' between Thermo settings & Thermo plastics?
   b) Explain the setting and hardening of cement with chemical reactions involved in it.
   c) Describe briefly about the Compression moulding technique. [4M+5M+3M]

(OR)

3. a) Write an account on: of the following.
   (i) PE (ii) PVC
   b) Explain the manufacture of cement in detail with a neat diagram. [6M+6M]

UNIT-II

4. a) What are the specifications of potable water. Discuss the various steps involved in the treatment of water for domestic purpose.
   b) What is reverse osmosis? How sea water is purified using this technique. [8M+4M]

(OR)

5. Write a brief note on:
   (a) Zeolite process for the removal of hardness of water with limitations.
   (b) Break point chlorination. [6M+6M]

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UNIT-III

6. a) Write short note on: i) concentration cell corrosion ii) Factors influencing rate of corrosion
   b) Explain how corrosion can be minimized using the following techniques i) design and selection of material ii)cathode protection [6M+6M]

(OR)

7. a) Discuss the role of nature of oxide formed in oxidation corrosion.State and explain Pilling –Bed worth role
   b) Give outlines of various methods used to prevent corrosion of metals [5M+7M]

UNIT-IV

8. a) What is meant by knocking? How is it related to chemical constitution? Explain octane number and cetane number.
   b) How are lubricants classified? Discuss the boundary film lubrication. [6M+6M]

(OR)

9. a) What is meant by cracking of petroleum ? Explain Fischer –Tropschs method to synthesis the gasoline
   b) Explain the following properties of lubricants and give their significance (i) Aniline point (ii) Could & Pour point. [7M+5M]

UNIT-V

10. a) Explain Green house concept
    b) Discuss the engineering applications of nano particles.
    c) Any five principles of Green chemistry [4M+3M+5M]

(OR)

11. Write an informative note on
    a) Photovoltaic cell.
    b) Green Synthesis.
    c) SWNT &MWNT. [4M+5M+3M]

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech II Semester Regular / Supplementary Examinations, May-2016
ENGINEERING DRAWING
(For ECE Branch only)

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

PART-A

Answer all questions **[10 x 1=10M]**

1. a) What is unidirectional system of dimensioning ?
b) Define Vernier scale
c) Define third angle projection
d) When a line is parallel to HP and VP its true length is shown in --- view
e) What is a profile plane?
f) When a plane is perpendicular to HP and parallel to VP its true length is shown in --- view
g) Define cylinder
h) Define pyramid
i) Define Isometric drawing
j) Define isometric scale

PART- B

Answer one question from each unit **[5 x 12=60M]**

UNIT - I

2 Construct a diagonal scale of R.F.=1:32,00,000 to show kilometers and long enough to measure upto 400km.show distances of 257 Km on your scale.

(OR)

3. Draw a straight line AB of any length Mark a point F, 60mm from AB. Trace the path of a point P moving in such a way, that the ratio of its distance from the point F, to its distance from AB is 3:2 plot at least 10 points. Name each curve. Draw a normal and tangent to each curve at a point on it. 45mm from F.

UNIT - II

4 **(a).** A point B is 20 mm from HP & 20 from VP. Draw its projections in all possible positions **(b).** Project the following points and specify the quadrants

i) A Point P plan is 20mm above XY and the elevation is 10mm below the plan.
ii) A Point Q its projections coincide with each other and 15 mm above XY.

(OR)

5 a)A line PQ, 9 cm long, is in the V.P. and makes an angle of 30^0 with the H.P. Its end P is 2.5 cm above the H.P. draw its projections.

b) The length of the top view of a line parallel to the V.P. and inclined at 45^0 to the H.P. is 5 cm. One end of the line is 1.2 cm above the H.P. and 2.5 cm in front of the V.P. Draw the projections of the line and determine its true length.

UNIT - III

6. A plate is of the shape isosceles triangle of base 60 and altitude 80. Draw the projections of the plate, when it is placed such that the front view appears as an equilateral triangle of sides 60 each and one of the plate edges makes 30^0 with the H.P

(OR)

7. A square lamina of side 80 mm rests on a corner on H.P. and it is inclined with H.P. such that its plan is a rhombus with a diagonal of 40 mm. The long diagonal is inclined with the V.P. at 45°. Determine its inclination with H.P. and draw its projections.

UNIT - IV

8. A hexagonal prism of 30 mm side of base and 70 mm height, resting on the H.P. on one of its base edges. The axis is inclined at 30^0 to the H.P. Draw its projections.

(OR)

9. Draw the projections of a cone, base 75 mm diameter and axis 100 mm long on the H.P. on one of its generators with the axis parallel to the V.P.

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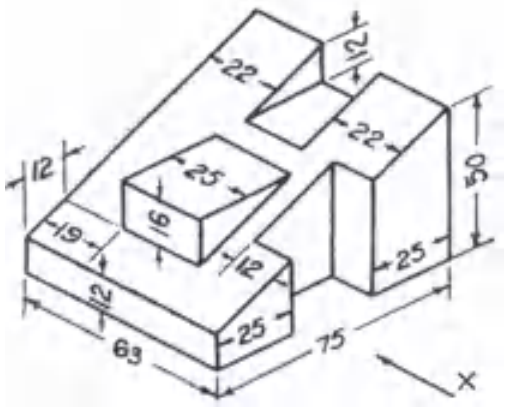
UNIT – V

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.