PVP 14

Code: CE1T3, CS1T3, EC1T4, IT1T3

I B. Tech - I Semester – Regular/Supplementary Examinations
December 2016

ENGINEERING CHEMISTRY
(Common for CE, CSE, ECE & IT)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks
11 x 2 = 22 M

1.
a) State the impurities that cause hardness of water.
b) Why is hot lime-soda process better than the cold process?
c) Give any two examples of biodegradable polymers.
d) Mention the moulding constituents of plastics.
e) What is sonochemistry? Explain.
f) Explain any two engineering applications of fullerenes.
g) Write a short note on dry corrosion.
h) What are the characteristics of a good paint?
i) Discuss briefly on Superconductors.
j) Give any four applications of liquid crystals.
k) What is Doping? Explain with one example.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.
3 x 16 = 48 M

2. a) Calculate the temporary and permanent hardness water containing $Mg(HCO_3)_2$=29.2mg/L, $Ca(HCO_3)_2$= 32.4mg/L, $CaCl_2$ =27.75mg/L, $MgSO_4$=24mg/L, KCl=20mg/L. 6 M

b) Distinguish between hot lime-soda and cold lime-soda process. 4 M

c) Illustrate the reverse osmosis process with a diagram. 6 M

3. a) Enumerate the differences between addition and condensation polymerization. 4 M

b) Write a brief note on the preparation and properties of Bakelite. 6 M

c) Describe any two moulding techniques for fabrication of plastics. 6 M

4. a) Write the principles of green chemistry. 8 M

b) What are carbon nanotubes? Explain their types. 8 M

5. a) Discuss the mechanism of electrochemical corrosion. 4 M

b) Write notes on
i) Differential aeration 4 M
ii) Sacrificial anodic protection 4 M
iii) Galvanizing 4 M

6. a) Explain the stoichiometric and non-stoichiometric defects in crystals. 8 M

b) Write a detailed note on liquid crystal display. 4 M

c) Write a brief account on photo voltaic cells. 4 M