(b) Write short notes on : $5 \times 2 = 10$

  (i) Silicones

  (ii) Polymeric Composites

9. Explain briefly the applications of following :

  (a) Thermogravimetric analysis   5

  (b) Flame photometry   5

  (c) UV spectroscopy   5

  (d) IR spectroscopy   5

Roll No. ....

24005

B. Tech. Ist Semester

Examination – December, 2015

ENGINEERING CHEMISTRY

Paper : CH-101-F

Time : Three Hours]   *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note :   Attempt *five* questions in all, selecting at least *one* question from each Section. Question No. **1** is *compulsory.* All questions carry equal marks.

1. (a) Define the various terms involved in phase rule.

  (b) What is metastable state ?

  (c) What is an inhibitor in the process of catalysis ? Give an example.

  (d) Name the various sources of natural water.

(e) Define reverse osmosis.

(f) What is electrochemical corrosion ?

(g) Define additives for lubricants.

(h) What is copolymerisation ?

(i) How is Teflon prepared ?

(j) State Lambert - Beer's law. $2 \times 10 = 20$

SECTION – A

2. (a) Draw and explain the phase diagram for ice-water-water vapours system. 10

(b) What do you understand by reduced phase rule ? Discuss its application to Pb-Ag system with the help of phase diagram. 10

3. (a) What do you understand by homogeneous and heterogeneous catalysis ? Discuss them with suitable examples. 10

(b) Write short notes on :

(i) Poisoners in catalysis 5

(ii) promoters in catalysis 5

SECTION – B

4. (a) What is hardness of water ? Describe the estimation of hardness of water by EDTA method. 10

(b) Discuss the boiler corrosion in brief. How is it controlled ? 10

5. Write short notes on :

(a) Water softening by zeolite process. 10

(b) Desalination of water by Electrodialysis. 10

SECTION – C

6. Define corrosion of metals. Describe the various corrosion control methods, in brief. 20

7. (a) Define lubricants. Explain different mechanisms of lubrication. 10

(b) Describe any *two* properties of lubricants. 10

SECTION – D

8. (a) Write preparation, properties and uses of :

$5 \times 2 = 10$

(i) Bakelite

(ii) PVC