

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

(i) Silicone

(ii) Polymers

9. Explain briefly the applications of following :

(a) Thermogravimetric analysis 5

(b) Flame photometry 5

(c) UV spectroscopy 5

(d) IR spectroscopy 5

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**24005**

**B. Tech. 1st 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 copolymerization?
- (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 vapor 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