

(b) Write short notes on :

5 × 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.

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(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

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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 Electro dialysis. 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

24005-22050-(P-4)(Q-9)(15) (3)

P. T. O.