

Roll No.

24005

**B. Tech 1st Semester (Common for All
Branches) Examination – December, 2017**

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 question carry equal marks.

1. (a) Define incongruent melting point.
- (b) What do you understand by metastable equilibrium ?
- (c) Describe the positive and negative catalysis with examples.
- (d) Name the type of impurities present in natural water.
- (e) What are zeolites ?
- (f) Define Microbiological corrosion.

- (g) What is Pilling Bedworth ratio ?
(h) Define aniline point.
(i) Differentiate between thermoplastic and thermosetting polymer.
(j) State Lambert-Beer's law. $2 \times 10 = 20$

SECTION – A

2. (a) Give the application of phase rule to a system having simple eutectic point. Explain with the phase diagram. 10
(b) Discuss the applications of phase rule for ice-water-water vapors system with the help of phase diagram. 10
3. (a) What is catalysis ? Discuss the mechanism of types of catalysis. 10
(b) Describe the concept of promoters, inhibitors and poisoners in catalysis. 10

SECTION – B

4. (a) Give details of scale and sludge formation in boilers along with the methods for their prevention. 10
(b) Explain caustic embrittlement in boilers and how can it be avoided ? 10
5. (a) Describe lime soda process for softening of hard water. Give the advantages of this process also. 10
(b) Explain break point chlorination. 10

SECTION – C

6. (a) Name the different methods of corrosion control. Explain the cathodic protection in detail. 10
(b) Write a note on differential aeration corrosion. 10
7. Write short notes on the following properties of lubricants :
- (a) Viscosity index 5
(b) Acid value 5
(c) Saponification number 5
(d) Flash and Fire Point 5

SECTION – D

8. How are polymers classified on the basis of structure, synthesis, source of origin, molecular forces. 20
9. Describe the principle, technique and application of the following :
- (a) DTA 10
(b) UV spectroscopy 10