

24005

B. Tech. 1st Semester Examination,
December – 2016

ENGINEERING CHEMISTRY

Paper–CH-101-F

Time allowed : 3 hours]

[Maximum marks : 100

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 degree of freedom.
- (b) What are enzymes ?
- (c) Why do we express the hardness in terms of CaCO_3 ?
- (d) What is break-point chlorination ?
- (e) Define Corrosion.
- (f) What do you understand by galvanization ?
- (g) Why is lubricant needed ?
- (h) What is meant by the term 'vulcanization' of rubber ?
- (i) Give important applications of PVC.
- (j) What is the principle of DSC ? 2×10=20

Section–A

2. (a) Draw and explain the phase diagram of sodium sulphate-water system in detail. 10
- (b) Discuss the phase diagram of carbon dioxide system. 10

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3. Discuss the following :

- (a) Homogeneous catalysis 10
- (b) Heterogeneous catalysis 10

Section

- 4. (a) What is the principle of the determination of TA method? Describe the method. 10
- (b) What is meant by the 'alkalinity' of water? How will you determine it? 10
- 5. (a) Describe the ion-exchange process for demineralization of water. 10
- (b) What is salinized water? Explain the process of reverse osmosis for desalination of water? 10

Section

- 6. (a) What is dry corrosion? How is it different from wet corrosion? Explain its types. How it is affected by various factors? 10
- (b) Describe the various factors affecting corrosion. 10
- 7. Describe the following properties of lubricants :
 - (a) Viscosity 5
 - (b) Cloud point and Pour point 5
 - (c) Aniline point 5
 - (d) Iodine Value 5

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Section-D

8. Write the preparation and applications of the following:

- (a) Silicones 5
- (b) Teflon 5
- (c) Bakelite 5
- (d) PF resins 5

9. Describe the following :

- (a) Flame photometry 6
- (b) Laws of light absorption 6
- (c) Thermo gravimetric analysis 8

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