24005

B.Tech. 2nd Semester Examination, May–2016

ENGINEERING CHEMISTRY

Paper–CH-101-F

Common for all Branches

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 questions carry equal marks.*

1. (a) Define the term components and degree of freedom with respect to phase rule.

(b) What is Eutectic point ?

(c) Define the term 'autocatalysis'.

(d) Name the impurities present in natural water.

(e) What is meant by desalination ?

(f) What is Pilling-Bedworth rule ?

(g) Describe biodegradable lubricants.

(h) Define functionality and degree of polymerisation.

(i) Why additives are used in lubricants ?

(j) Give the principle of flame photometry.

2×10=20

Section–A

2. (a) Draw and explain the phase diagram of carbon dioxide system in detail. 10

(b) Discuss phase diagram of any system having congruent melting point. 10

3. (a) Describe the role of promoters, poisoners and inhibitors in catalysis. 10

(b) Discuss the enzymatic catalysis, in brief. 10

Section–B

4. (a) What is scale formation in Boiler ? Explain disadvantages of scale formation and give any two methods of prevention of it. 10

(b) Define the term 'alkalinity' of water. Write the procedure for determination of alkalinity of water. 10

5. Write short notes on :

(a) Demineralisation of water. 10

(b) Break point chlorination. 10

Section–C

6. Write short notes on :

(a) Rusting of Iron

(b) Galvanic Corrosion

(c) Microbial Corrosion

(d) Electroplating. 5×4=20

7. (a) What are lubricants ? Discuss the classification of lubricants with examples. 10

(b) Define the following properties of lubricants and discuss their importance :

(i) Flash and Fire points 5

(ii) Cloud and Pour points. 5

Section–D

8. (a) Distinguish between :

(i) Addition and Condensation polymerisation. 5

(ii) Thermoplastic and Thermosetting resins. 5

(b) How are the different properties of polymers related to their structure ? 10

9. Write the informative notes on :

(a) UV Spectroscopy. 10

(b) Differential Thermal Analysis. 10