

Code No: RA13204

R13**RA-1****I B. Tech II Semester Supplementary Examinations, April/May - 2018****ENGINEERING CHEMISTRY**

(Com. to CE, ME)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is Compulsory
3. Answer any **THREE** Questions from **Part-B**
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PART -A

1. a) Why is hardness of water expressed in terms of calcium carbonate equivalent? (3M)
- b) Explain the purpose of salt bridge in an electrochemical cell. (3M)
- c) What is impressed current cathodic protection? (4M)
- d) Differentiate LDPE and HDPE. Give their uses. (4M)
- e) What is meant by petrol and diesel knocking? (4M)
- f) Write notes on lyotropic liquid crystals. (4M)

PART -B

2. a) What are boiler scales and sludges? Discuss their effects and how they can be minimized. (8M)
- b) Explain the construction and principle of glass electrode. (8M)
3. a) Explain how design and material selection help in minimizing corrosion. (8M)
- b) What are the limitations of natural rubber? How to overcome those problems? (8M)
4. a) Explain how hydrogen, carbon and sulphur can be determined by ultimate analysis. (8M)
- b) Explain intrinsic conducting polymers. (8M)
5. a) Discuss the chemical reactions involved in lime soda process. (8M)
- b) Explain injection and compression moulding process for fabrication of plastics. (8M)
6. a) What are fuel cells? Explain H₂-O₂ fuel cell and its advantages. (8M)
- b) What are LPG and CNG? Give its advantages. (8M)
7. a) Discuss the effect of (i) humidity (ii) nature of surface film on the rate of corrosion of metals. (8M)
- b) Write the applications of carbon nanotubes. (8M)