

Subject Code: R13104/R13

Set No - 1

I B. Tech I Semester Supplementary Examinations December - 2016

ENGINEERING CHEMISTRY

(Common to CE, ME, CSE, PCE, IT, ChemE, AeroE, AME, MinE, PE, Metal E, Textile Engg.)

Time: 3 hours

Max. Marks: 70

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory,
Three Questions should be answered from **Part-B**

PART-A

- (a) Calculate the gross and net calorific value of a sample of coal having following composition: C=85%, H=8%, S=1%, N=2% and ash=4%, Latent heat of steam=587cal/g.
(b) What is meant by reverse osmosis as applied to water chemistry?
(c) Draw strong acid-weak base conductometric titration curve and explain it.
(d) Why are gaseous fuels, more advantageous than solid fuels?
(e) Write a short note on decay of cement concrete and its prevention.
(f) Describe a fabrication method used for thermoplastics.

[3+4+4+3+4+4]

PART-B

- (a) Define fuel cell. Explain the construction and working of H₂-O₂ fuel cell. What are the advantages and limitations of fuel cell?
(b) (i) What is break-point chlorination of water?
(ii) Discuss the factors affecting sedimentation. [8+8]
- (a) Write short notes on the following: (i) Liquid crystals (ii) Nano materials
(b) Write the preparation, properties and engineering applications of Bakelite and PVC. [8+8]
- (a) What is concentration cell? Explain with example. Derive the equation for emf of concentration cell.
(b) Mention the distinctions between electroplating and electro less plating. Mention advantages of electroless plating. [8+8]
- (a) What is latex? How is natural rubber isolated from it? What is vulcanization? How does it improve the property of natural rubber.
(b) What is green chemistry? Explain the 12 principles of green chemistry. [8+8]
- (a) Describe ion exchange process for demineralization of water.
(b) What is meant by knocking in IC engines? Explain the mechanism of knocking in chemical terms. [8+8]
- (a) (i) What is LPG? What are the advantages of LPG over gaseous fuels?
(ii) Write short note on cracking.
(b) (i) Discuss the various factors influencing the rate of corrosion.
(ii) What is drying oil? Describe the function of drying oil in paint. [8+8]

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