

**B.Tech. SEM -II (Chemical/ Civil/ Electrical/ Mechanical/ Production  
2014 Course (CBCS) : SUMMER - 2019  
SUBJECT- ENGINEERING CHEMISTRY**

Day: Wednesday  
Date: 29/05/2019

S-2019-2537

Time: 10.00 AM TO 01.00 PM  
Max. Marks: 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non programmable **CALCULATOR** is allowed.
- 4) Neat diagrams must be drawn **WHEREVER** necessary.
- 5) Assume suitable data if necessary.

**Q.1 a)** Write a note on Priming & Foaming. (06)

**b)** An exhausted Zeolite softners was regenerated 45 lit. of 15% NaCl. How many liters of hard water having hardness 515 ppm  $\text{CaCO}_3$  equivalent can be softened by this softner. (04)

**OR**

**Q.1** What is meant by softening of water? Explain the zeolite method of water softening. (10)

**Q.2** Derive Bragg's equation for diffraction of X-rays by crystal with diagram. (10)

**OR**

**Q.2 a)** Explain the Law of constant elements of symmetries with diagram. (06)

**b)** What are the properties of Cement? (04)

**Q.3** What is Fuel? Draw a neat, labeled diagram & give the construction, working of Bomb Calorimeter. (10)

**OR**

**Q.3 a)** What is proximate analysis of coal ? Explain how the different factors are determined in proximate analysis of coal. (06)

**b)** What are the characteristics of Good fuels? (04)

**P.T.O.**

**Q.4** Explain various factors affecting the rate of corrosion. Describe Electroplating of metal for corrosion control with diagram. **(10)**

**OR**

**Q.4 a)** Explain mechanism of Electrochemical corrosion by Hydrogen liberation method. **(06)**

**b)** Write note on Electrochemical series and Galvanic series. **(04)**

**Q.5** What is Buffer solution? Explain mechanism of Acidic buffer, Basic buffer and Neutral buffer. **(10)**

**OR**

**Q.5 a)** Write short note on Lead-Acid storage cell. **(06)**

**b)** State and explain Ostwald's dilution law. **(04)**

**Q.6** What is conformational Isomerism? Discuss the conformational Isomerism in n-butane **(10)**

**OR**

**Q.6 a)** What is Optical isomerism? Discuss it in detail with suitable examples. **(06)**

**b)** Explain the following terms with examples **(04)**  
i) E-isomer ii) Z- isomer

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