

B.Tech. Sem-II All Branch.

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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