2011 Onwards.

SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | | **Total number of pages:|2 |**
Total number of questions:06

Regular / Reappear.

B.Tech. || 1st Sem / 2nd Sem 2011 Batch onwards.

Engineering Chemistry

Subject Code: BTCH-101A/101

Paper ID:

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**

PART A (2×10)

Q. 1. Short-Answer Questions: All COs

(a) What are coercing colloids?
(b) What are first generation petrochemicals? Give their names.
(c) What do you mean by the term passivity of metal?
(d) What is Deionized water?
(e) What is temporary hardness? How it is removed.
(f) Give two guidelines for designing safer chemicals.
(g) What is functionality of a polymer?
(h) What type of nuclei show NMR spectra?
(i) What are chromophores?
(j) What is fingerprint region in IR spectroscopy?

PART B (8×5)

Q. 2. (a) Discuss two types of vibrations in the molecules. CO2
(b) State Franck Condon Principle in UV spectroscopy with the help of graph.

OR

(a) What are electronic transitions? Explain different types of electronic transitions. CO2
(b) Discuss various factors affecting vibrational frequency.

Q. 3. (a) Discuss advantages and disadvantages of Lime soda process. CO1
(b) What is role of nature of oxide layer formed in oxidation corrosion?

OR

(a) What is desalination of water? Discuss any two processes for desalination. CO2
(b)(i) Why does a part of nail inside the wood undergoes corrosion easily.
(ii) How change in temperature affects rate of the corrosion?

Q. 4. (a) Give ^{1}H-NMR spectrum of CH_3- CH_2- OH. CO3&5
(b) What are natural gas liquids? How can they be recovered from natural

gas?.

OR

(a)Why TMS is used as a reference in NMR spectroscopy. Explain.
(b)What is metathesis? How it is helpful in the production of propylene.? CO3&5

Q. 5. (a)What are atom economical reactions? Give one example. CO4
(b)Discuss methods of preparation of nano-materials.

OR

(a)What are supra-molecular structures? Discuss various building blocks of supra-molecular structures. CO4
(b)Discuss role of micro-wave radiations in green synthesis.

Q. 6. (a)A polymer sample consists of 10 molecules of molecular weight 5000, 15 molecules of molecular weight 10000 and 75 molecules of molecular weight 7500. Calculate number average molecular weight of a polymer. CO6
(b)What are copolymers? Discuss different types of copolymers.

OR

(a)Explain the structural parameters which affect the properties of a polymer. CO6
(b)What are composite polymers? Classify the composite materials on the basis of types of matrix.