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Total No. of Questions: 09

Total No. of Pages: 02

B. Tech. (Sem. 1,2)
ENGINEERING CHEMISTRY
Subject Code: BTCH-101
Paper ID: A1106

Time: 3 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

1. Section A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. Attempt any **FIVE** questions from Section B & C. At least **TWO** questions each from Section B & C, each question carry **EIGHT** marks.

SECTION A

1. Compulsory Question:
 - a. How the intensity of the rotational spectral lines varies and why?
 - b. Are the lines in Rotational Raman Spectra equally spaced? Elaborate your answer.
 - c. Write a short note on waterline corrosion.
 - d. Discuss about supramolecular structures.
 - e. What is meant by tacticity of polymers?
 - f. Comment on the free energy change of photochemical reactions giving reasons.
 - g. What is meant by first, second and third generation petrochemicals?
 - h. How is Green Chemistry helpful in designing of safer chemicals?
 - i. Describe the term priming and foaming in Water and its treatment.
 - j. What do you understand by multiplicity of the state?

SECTION B

2. State Lambert-Beer's law. Derive its mathematical form. What are its limitations?
3. Write a detailed note on construction, working and chemistry behind photovoltaic cell.
4. With the help of a neat diagram, explain reverse osmosis method of desalination.
5. Write a detailed note on use of innocuous reagents in natural processes with suitable examples.

SECTION C

6. Discuss in details the causes of wet corrosion and the mechanism of wet corrosion with the help of chemical equations involved.
7. How are polymer matrix composites and fiber reinforced plastics made?
8. Describe in details "materials self-assembly".
9. Write in details about primary raw materials for petrochemicals and Crude oil.