

**I B. Tech I Semester Supplementary Examinations, July/August - 2021****APPLIED CHEMISTRY**  
(Com. to EEE, ECE, CSE, EIE, IT)

Time: 3 hours

Max. Marks: 75

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**Answer any five Questions one Question from Each Unit**  
**All Questions Carry Equal Marks**

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1. a) Explain suspension and emulsion polymerization. (8M)  
b) Write about biomedical polymers and its applications. (7M)

**Or**

2. a) What are the drawbacks of natural rubber? How vulcanization improves the properties of natural rubber. (8M)  
b) When do polymers act as conductors? Explain p-type conducting polymers. (7M)

3. a) Explain construction and working of calomel electrode. (8M)  
b) What is cathodic protection? Explain sacrificial anodic and impressed current cathodic protection. (7M)

**Or**

4. a) What is the difference between primary and secondary batteries? Explain working of Ni-metal hydride cells. (8M)  
b) Discuss (i) cathodic (ii) anodic protective coatings (7M)

5. a) Explain any one method for preparation of CNT's and fullerenes. (8M)  
b) Discuss Stoichiometric semiconductors. (7M)

**Or**

6. a) Explain characterization of nanomaterials by TEM method. (8M)  
b) Write notes on electrical insulators and their applications. (7M)

7. a) What is computational chemistry? Give its advantages. (8M)  
b) Define rotaxanes and catenanes. How are they considered as artificial molecular machines? (7M)

**Or**

8. a) Discuss briefly about Ab-initio studies. (8M)  
b) Explain acid-base controlled molecular shuttle. (7M)

9. a) Explain instrumentation of FT-IR. (8M)  
b) What are photovoltaic cells? Discuss working and disadvantages of photovoltaic cell. (7M)

**Or**

10. a) What is meant by electromagnetic spectrum? Write the laws of absorption of UV spectroscopy. (8M)  
b) Explain working, advantages and disadvantages of tidal and wave power conversion. (7M)