

I B. Tech I Semester Supplementary Examinations, November - 2020
ENGINEERING CHEMISTRY-I
(Com. to All Branches)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks

~~~~~

1. a) Explain the working principle of refrigerator with a flow diagram. (8M)  
b) Discuss the principle of osmosis and reverse osmosis. Give their applications. (7M)
2. a) Explain the properties of colloids. (8M)  
b) What is meant by fermentation? Give its industrial applications. (7M)
3. a) What is the principle involved in working of biosensor? Give its applications. (8M)  
b) Explain how ion selective electrode helps in determination of chloride. (7M)
4. a) Write notes on (8M)  
(i) Controlled valency semiconductors  
(ii) Stiochiometric semiconductors  
b) Write the applications of superconductors. (7M)
5. a) Explain the working of a bomb calorimeter with a neat sketch. (8M)  
b) Discuss ultimate analysis of coal. (7M)
6. a) What are primary and secondary batteries? Explain the working of Lechlanche cell. (8M)  
b) Derive Nernst equation of a half cell. (7M)
7. a) Differentiate nuclear fission and nuclear fusion. (8M)  
b) Explain how nuclear waste can be disposed safely. (7M)
8. a) What is solar energy? Discuss the working of photovoltaic cells. (8M)  
b) Write notes on green house concepts. (7M)