

Code No: R10104

R10**SET - 1****I B. Tech I Semester Supplementary Examinations, May - 2018****ENGINEERING CHEMISTRY-I**

(Com. to All Branches)

Time: 3 hours

Max. Marks: 75

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

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1. a) Explain the principle of Joule Thomson effect. (8M)  
b) Explain Lechatelier's principle. (7M)
2. a) Discuss the factors influencing viscosity. (8M)  
b) What is the role of a catalyst? Give example. Mention its industrial applications. (7M)
3. a) Explain fluorescence and phosphorescence with examples. (5M)  
b) Explain the principle of NMR. Give its applications. (10M)
4. a) Discuss about doping semiconductors. (8M)  
b) Explain properties and engineering applications of superconductors. (7M)
5. a) What is calorific value? Explain the construction of a bomb calorimeter with a neat sketch. (8M)  
b) Explain carbonization of coal. (7M)
6. a) Explain concentration cells with a neat sketch. (8M)  
b) What are fuel cells? Explain  $H_2-O_2$  fuel cell. Give its applications. (7M)
7. a) Explain the role of moderator, control rods in nuclear reactor. (8M)  
b) Explain different ways for disposal of nuclear wastes. (7M)
8. a) Write notes on solar heaters. (5M)  
b) What are green house gases? What are their sources? How can they be minimized? (10M)