

Code No: R10104

**R10****SET - 1**

**I B. Tech I Semester Supplementary Examinations, Nov/Dec - 2017**  
**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 solubility and ionic product. (8M)  
b) Discuss the working of refrigerator with a neat flow diagram. (7M)
  2. a) Explain (i) tyndal effect (ii) electrophoresis (iii) conditions for fermentation process (15M)  
(iv) applications of fluid in motion.
  3. a) Explain fluorescence and phosphorescence. Give examples. (8M)  
b) Write the principle involved in NMR. (7M)
  4. a) Discuss the types of liquid crystals. (8M)  
b) What is super conductivity? Give its engineering applications. (7M)
  5. a) Explain carbonization of coal. (8M)  
b) Explain how moisture, volatile matter and ash determined in coal sample. (7M)
  6. a) What are fuel cells? Explain  $H_2-O_2$  fuel cell. (8M)  
b) Define single electrode potential. Derive the Nernst equation of a cell. (7M)
  7. a) What are nuclear fission and nuclear fusion reactions? Give examples. (8M)  
b) Explain the importance of disposal of nuclear waste. (7M)
  8. a) Write notes of solar heaters and solar reflectors. (8M)  
b) Explain green house effect. (7M)