

**I B. Tech I Semester Supplementary Examinations, Oct/Nov. - 2018**  
**ENGINEERING CHEMISTRY**

(Com. to CE,ME,CSE,PCE,IT,Chem E,Aero E,AME,Min E,PE,Metal E,Textile Engg)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
 2. Answering the question in **Part-A** is Compulsory  
 3. Answer any **THREE** Questions from **Part-B**

**PART -A**

1. a) Explain the principle involved in EDTA method for determination of hardness. (3M)
- b) Discuss the importance of electrochemical series. (4M)
- c) Explain the various types of metal oxide layers formed during dry corrosion. (4M)
- d) What is addition and condensation polymerization? Give examples. (4M)
- e) Explain the reason for knocking in engines. (3M)
- f) Discuss the working of photovoltaic cell. (4M)

**PART -B**

2. a) Explain compounding of plastics. (8M)
- b) What is meant by combustion? The percentage composition of a sample of coal is C = 75; H = 12; O = 8; S = 5. Calculate the composition of the dry products of combustion by volume if 80 % excess air is supplied. (8M)
3. a) Write notes on (8M)
  - (i) boiler corrosion
  - (ii) caustic embrittlement
- b) Discuss the principle involved in potentiometric titrations. (8M)
4. a) Explain the various steps taking place during refining of petroleum. (8M)
- b) Explain setting and hardening of cement. (8M)
5. a) Explain cathodic protection. (8M)
- b) Explain reverse osmosis method and give its applications. (8M)
6. a) Explain the working of primary and secondary battery taking an example for each. (8M)
- b) Discuss the preparation and applications of styrene butadiene rubber and polyethylene. (8M)
7. a) Discuss about conducting polymers. (8M)
- b) Discuss electrochemical theory of corrosion. (8M)