

**I B. Tech II Semester Supplementary Examinations, April/May - 2018****ENGINEERING CHEMISTRY**

(Com. to ECE, EEE, EIE, Bio-Tech, E Com E, Agri E)

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**
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**PART -A**

1. a) What is meant by reverse osmosis? (3M)
- b) Explain how conductance varies for a strong acid and strong base. (4M)
- c) What is Pilling Bedworth rule? (3M)
- d) Discuss the physical properties of polymers. (4M)
- e) How is sulphur and moisture removed from crude petroleum? (4M)
- f) Give the applications of biodegradable polymers. (4M)

**PART -B**

2. a) Explain permutit process for softening of water. (8M)
- b) Explain electrochemical series and its uses. (8M)
3. a) What are organic coatings? Discuss the constituents and functions of paints. (8M)
- b) Discuss the types of polymerization. (8M)
4. a) Explain how petrol and diesel knocking can be minimized. (8M)
- b) What is a photovoltaic cell? Write the principle involved in it. Give its applications. (8M)
5. a) Explain the importance of additives added in compounding of plastics. (8M)
- b) Explain how sterilization and disinfection helps in purification of drinking water. (8M)
6. a) Derive Nernst equation. Calculate the emf of the cell at 25°C: Ni/Ni<sup>2+</sup> (0.01M)//Pb<sup>2+</sup>(0.5M)/Pb. Standard electrode potential of nickel and lead are -0.24 V and -0.13V respectively. (8M)
- b) What are the characteristics and limitations of gaseous fuels? (8M)
7. a) Explain nematic and cholesteric liquid crystals. Write their applications. (8M)
- b) Explain electroplating with an example. (8M)