

**I B. Tech II Semester Supplementary Examinations, July/August - 2021**  
**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) Calculate the temporary and permanent hardness of a water sample containing (4M)  
 $MgCl_2 = 95\text{ppm}$ ;  $CaSO_4 = 204 = \text{ppm}$  and  $Ca (HCO_3)_2 = 243 \text{ ppm}$  and  $Mg (HCO_3)_2 = 73 \text{ ppm}$ .
- b) Define specific and equivalent conductance? Mention its units. (3M)
- c) Explain the role of thinners and driers in paints. (3M)
- d) What are elastomers? Give an example and explain how it is prepared. (4M)
- e) What is meant by petrol knocking? How can it be minimized? (4M)
- f) What are solar reflectors? How do they work? (4M)

**PART -B**

2. a) State the minimum characteristics of potable water. (8M)
- b) Explain the importance of electrochemical series. (8M)
3. a) Explain the evolution of hydrogen and absorption of oxygen in wet corrosion. (8M)  
Write about cathodic protection.
- b) Differentiate addition, condensation and co-polymerization with examples. (8M)
4. a) Explain fractional distillation of petroleum with a neat labeled diagram. (8M)
- b) What are conducting polymers? Explain extrinsically conducting polymers. (8M)
5. a) Discuss cholesteric and smectic liquid crystals? Explain their applications. (8M)
- b) Explain the methods of coating of zinc and tin on iron. (8M)
6. a) What are potentiometric titrations? Explain variation of electrode potential when (8M)  
titrated strong acid with strong base.
- b) What is LPG? What are its constituents? Explain the advantages of LPG. (8M)
7. a) Discuss types of stereoregular polymers and its significance. (8M)
- b) Compare lime soda process with permutit process. (8M)