

Code No: R13104

**R13****SET - 1****I B. Tech I Semester Regular/Supplementary Examinations, Nov/Dec - 2017****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. Answer **ALL** the question in **Part-A**3. Answer any **THREE** Questions from **Part-B****PART -A**

1. a) Explain why hardness should be removed in water. (3M)
- b) Discuss the construction of glass electrode. (5M)
- c) Explain metal cladding. (4M)
- d) Write the applications of elastomers. (3M)
- e) Compare CNG and natural gas. State which and why it is mostly used in automobiles. (4M)
- f) What is the role of gypsum and  $\text{SO}_2$  in cement? (3M)

**PART -B**

2. a) Explain turbine deposits and boiler corrosion. (8M)
- b) Discuss the principle involved in potentiometric titrations. (8M)
3. a) Differentiate anodic and cathodic coatings. (8M)
- b) How Bakelite is prepared? Discuss its applications. (8M)
4. a) Discuss fixed bed catalytic cracking and explain its drawbacks. (8M)
- b) Explain fiber reinforced plastics. (8M)
5. a) Discuss any two methods of green synthesis. (8M)
- b) Explain (i) impressed current cathodic protection (ii) electroless plating. (8M)
6. a) Explain the drawbacks and advantages of dry cell and lead-acid battery. (8M)
- b) What is combustion? A sample of coal was found to contain the following constituents: C = 86%, O = 5%, S = 2%, H = 4%, N=3%. Calculate the minimum amount of air required for complete combustion of 1 kg of coal and also calculate the percentage composition by weight of dry products of combustion. (8M)
7. a) Explain the additives added in compounding of plastics. (8M)
- b) Explain any one method for softening water. (8M)