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***B.Tech. Degree I & II Semester Examination in
Marine Engineering May 2018***

**MRE 1104 ENGINEERING CHEMISTRY
(2013 Scheme)**

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Distinguish between temporary hardness and permanent hardness. (5)
 (b) What is meant by desalination of water? What are its advantages? (10)
 (c) Distinguish between softening and demineralization of water. (5)
- OR**
- II. (a) What is air pollution? What are the major air pollutants? (5)
 (b) Distinguish between cold lime soda process and hot lime soda process. (5)
 (c) What is 'Green house effect'? Why is it so called? What are its consequences? (10)
- III. (a) What are the advantages of potentiometric titration over normal colorimetric titration? (8)
 (b) What are Fullerenes? What are the special features of Fullerenes? (7)
 (c) What is a reference Electrode? Explain with one example. (5)
- OR**
- IV. (a) Explain the Poggendorff's compensation method of determination of EMF. (8)
 (b) What is a standard cell? Explain one example with reactions. (7)
 (c) Derive the Nernst equation. (5)
- V. (a) Explain any five methods of prevention of corrosion. (15)
 (b) Differentiate between Galvanization and Tinning. (5)
- OR**
- VI. (a) What are the factors influencing corrosion? (10)
 (b) Explain any three methods of Coating. (10)
- VII. (a) Distinguish between gross and net calorific value of a fuel. (10)
 (b) Explain the working of solar cells. (5)
 (c) What is meant by octane rating for petrol? (5)
- OR**
- VIII. (a) Distinguish between producer gas and water gas. (5)
 (b) Distinguish between proximate and ultimate analysis. (5)
 (c) Explain the difference between Thermal and Catalytic cracking. (5)
 (d) Distinguish between Coal and Coke. (5)
- IX. (a) What is meant by vulcanization? Explain. (8)
 (b) Distinguish the preparation and properties of Buna rubber and Butyl rubber. (8)
 (c) What are the important differences between thermoplastics and thermosets? (4)
- OR**
- X. (a) Explain the method of production of the following. (12)
 (i) Silicon Rubber (ii) UF Resin (iii) Nylon 6-6 (iv) Polystyrene (v) Teflon.
 (b) Differentiate between Extrusion and Injection moulding. (8)