BT–MRE –I&II–05.17-0673 Reg. No. | | | | | | | | |

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B.Tech. Degree I&II Semester Examination in Marine Engineering May 2017

MRE 1104 ENGINEERIING CHEMISTRY

(2013 Scheme)

Time : 3 Hours Maximum Marks : 100

(5 × 20 = 100)

I. (a) Write notes on (i) Caustic embrittlement. (ii) Priming and foaming. (6)
(b) Describe ion-exchange method of demineralization of water. (7)
(c) Distinguish between carbonate and noncarbonate hardness of water with example. (7)

OR

II. (a) Explain the process of reverse osmosis. (6)
(b) Describe two methods for internal treatment of boilers to prevent scale formation. (6)
(c) Explain green house effect. (4)
(d) Differentiate between BOD and COD. (4)

III. (a) What is a standard cell? Explain the working of Weston-Cadmium Cell. (6)
(b) What is a reference electrode? Explain the working of SHE with figure. (6)
(c) Explain the characteristic features of Fullerenes. (8)

OR

IV. (a) What is the difference between Thermotropic and Lyotrpic Liquid Crystals? (8)
(b) Write notes on (i) superconductors (ii) organic semi conductors. (4)
(c) Differentiate between Frenkel and Shotsky defect. (8)

V. (a) Differentiate between chemical and electrochemical corrosion? (8)
(b) Write any four methods to prevent corrosion. (8)
(c) What is cladding? Explain. (4)

OR

VI. (a) What are the important factors controlling corrosion? (7)
(b) What are the different methods of coating? (8)
(c) What are the different ingredients in paint? Give its functionalities. (5)

VII. (a) What is meant by calorific value of a fuel? What is the difference between gross and net calorific value? (8)
(b) Distinguish between proximate and ultimate analysis of coal. (6)
(c) Differentiate between low and high temperature carbonization of coal. (6)

OR

VIII. (a) What are the characteristics of a good fuel? (8)
(b) Give the principle and theory of determination of calorific value by bomb calorimeter. (7)
(c) Differentiate between Water gas and Producer gas. (5)

IX. (a) Explain the theory and importance of vulcanization. (8)
(b) Write notes on the following (i) injection molding. (ii) Extrusion molding. (6)
(c) Differentiate between thermoplastics and thermosetts. (6)

OR

X. Give the method of preparation, properties and important uses of the following polymers. (5 ×4 = 20)
(i) Polystyrene (ii) PVC (iii) Tefion (iv) Butyl Rubbera
(v) Silicone Rubber.

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