Reg. No. | | | | | | | | | |

B.E./B.TECH. DEGREE EXAMINATIONS, MAY/JUNE 2017

FIRST SEMESTER

CY 16152 – CHEMISTRY FOR MARINE ENGINEERING

(Marine Engineering)

(Regulation 2016)

Q. Code: 588641

Time: Three Hours **Maximum : 100 Marks**

Answer **ALL** questions

PART A - (10 X 2 = 20 Marks)

1. List down any four impurities present in the fresh water.
2. Give the approximate composition of sea water.
3. Define fretting corrosion.
4. Which one will corrode faster, if a piece of impure zinc and pure zinc are placed in salt solution?
5. What is caustic embrittlement?
6. Define the term priming.
7. Define the term hardness along with its unit.
8. Why do we express hardness in terms of calcium carbonate equivalent?
9. List any two advantages of fuel cells.
10. How is a NICAD battery constructed?

PART B - (5 X16 = 80 Marks)

11. (a) (i) Classify the sources of water and explain the purpose of water treatment. (8)

(ii) What are the requirements of a boiler feed water? (8)

(OR)

(b) What are boiler scales? Discuss the causes, effects and preventive measures of boiler scale. (16)

12. (a) What is electrochemical corrosion? Discuss the mechanism of electrochemical corrosion by hydrogen evolution. (16)

(OR)

(b) Explain the various methods of corrosion control with neat diagram. (16)

13. (a) (i) What is reverse osmosis? How sea water is purified using this technique? (8)

(ii) Describe the hot lime-soda process for softening of water. (8)

(OR)

(b) (i) Explain the effects of the dissolved salts and gases in feed water on boilers. (8)

(ii) Define alkalinity. How will you estimate the alkalinity in water? (8)

14. (a) Explain the principle and the estimation of hardness of water by EDTA method. (16)

(OR)

(b) (i) Draw a suitable diagram and describe the zeolite process of softening of hard water. (8)

(ii) Write short notes on the use of chemical coagulants to remove the suspended impurities present in water. (8)

15. (a) (i) Describe the construction and working of lead acid battery with reaction occurring during discharging. (8)

(ii) Discuss the working principle of solar cell with a diagram and mention its applications in detail. (8)

(OR)

(b) (i) Write notes on carbon nanotubes and their applications. (8)

(ii) Explain the working principle of hydrogen-oxygen fuel cell with reactions. (8)