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Question Paper Code : 80102

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019:

First Semester

Marine Engineering

CY 8101 — CHEMISTRY FOR MARINE ENGINEERING

(Regulation 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What are the physical, Chemical and biological characteristics of water?
2. What is added to remove DO from boiler-feed water?
3. What are zeolites?
4. Mention the advantages of RO over ion exchange process.
5. Name the gases dissolved in water that cause corrosion.
6. What is galvanic corrosion? Give an example.
7. What is the purpose of adding buffer during estimation of hardness by EDTA titration?
8. What is coagulation?
9. Name few semiconductors used for developing solar cells.
10. Expand PEMFC and DMFC.

PART B — ($5 \times 16 = 80$ marks)

11. (a) (i) Define BOD. What is its importance? How is it determined? (8)
(ii) Write a note on
(1) Iron
(2) Colour in a water sample. (8)

Or

- (b) (i) Define COD. What is its importance? How is it determined? (8)
(ii) Write a note on
(1) Turbidity
(2) Chloride content in a water sample. (8)
12. (a) (i) What is electrodialysis? Explain the process in detail. (8)
(ii) Explain the mechanism of demineralization process. (8)
- Or
- (b) (i) What is reverse osmosis? Explain the process and its advantages. (8)
(ii) What is zeolite? Explain the zeolite process of treatment of water. (8)
13. (a) Explain the following:
(i) Scale and sludge formation (8)
(ii) Pitting corrosion. (8)
- Or
- (b) Discuss the following:
(i) Priming and foaming (8)
(ii) Stress corrosion. (8)
14. (a) What is hardness? What is its unit? How to determine it by EDTA method. Explain in detail. (16)
- Or
- (b) Explain the following in detail:
(i) TDS test
(ii) DO test. (16)
15. (a) (i) Explain the construction and working of lead acid battery. (8)
(ii) Explain the construction and working of Ni-Cd battery. (8)
- Or
- (b) (i) Explain the working principle of a hydrogen-oxygen fuel cell. (8)
(ii) Explain the role of solar cells in the photoconversion process. (8)
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