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Question Paper Code : 80402

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

First Semester

Civil Engineering

CY 2111/CY 14/080010001 — ENGINEERING CHEMISTRY – I

(Common to All Branches)

(Regulations 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is Break point chlorination?
2. Mention the salts responsible for temporary and permanent hardness of water.
3. What is copolymerisation? Give an example.
4. How is Teflon prepared? Mention its uses.
5. Define the term adsorbent and adsorbate giving suitable examples.
6. What is an adsorption isotherm?
7. What are the moderators used in nuclear reactor?
8. Write the differences between primary and secondary batteries. Give examples.
9. Define refractoriness.
10. Differentiate SWNT and MWNT.

PART B — (5 × 16 = 80 marks)

11. (a) (i) With necessary diagram, describe the reverse osmosis method for the desalination of brackish water. (8)
- (ii) What is break-point chlorination? Explain showing different zones. What are the advantages of break-point chlorination? (8)

Or

- (b) (i) Describe demineralization process in treatment of water. Mention the advantages of this method. (8)
- (ii) Write a note on calgon conditioning and disinfection. (8)
12. (a) (i) Define the terms monomer and functionality. Explain condensation polymerisation with a suitable example. How does it differ from chain polymerisation? (8)
- (ii) Discuss the preparation, properties and uses of polycarbonate and polyethylene terephthalate. (8)

Or

- (b) (i) What are thermoplastics and thermosetting plastics? Distinguish between the two. (8)
- (ii) What are the drawbacks of raw rubber? Describe the process to improve the properties of raw rubber in detail. (8)
13. (a) (i) Write a note on the different types of adsorption isotherms. (6)
- (ii) Derive the langmuir adsorption isotherm and interpret it. (10)

Or

- (b) (i) Explain the various factors influencing adsorption. (8)
- (ii) Interpret the Freundlich's isotherm. (8)
14. (a) (i) What is a nuclear reactor? Explain the process of power generation using a neat diagram. (12)
- (ii) Write a note on lithium batteries. (4)

Or

- (b) (i) What are solar cells? What are the challenges involved in the Conversion of solar energy into useful energy? (10)
- (ii) Explain the mechanism of hydrogen oxygen fuel cell. (6)

15. (a) Explain the following :
- (i) Natural and synthetic abrasives, (8)
 - (ii) Refractories and their properties. (8)

Or

- (b) Write a note on the following:
- (i) Mechanism of lubrication. (8)
 - (ii) Applications of nanomaterials. (8)
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