

ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE
B.E. / B.TECH. DEGREE EXAMINATIONS : NOV / DEC 2011

REGULATIONS : 2008

FIRST SEMESTER

080010001 - ENGINEERING CHEMISTRY I

(COMMON TO ALL BRANCHES)

Time : 3 Hours

Max. Marks : 100

PART - A

(10 x 2 = 20 Marks)

ANSWER ALL QUESTIONS

1. What is Break point chlorination?
2. What is calgon conditioning?
3. What is condensation polymerization? Give an example.
4. What is degree of polymerization?
5. What is adsorption?
6. Mention the limitation of Langmuir's adsorption isotherm.
7. What is nuclear fission reaction? Give an example.
8. Distinguish between primary and secondary batteries.
9. What are refractories? Give an example.
10. What is Moh's scale?

PART - B

(5 x 16 = 80 Marks)

ANSWER ALL QUESTIONS

11. a) (i) How will you estimate hardness of water by EDTA method? (8)
(ii) Discuss the disadvantages of using hard water in boilers. (8)
- (OR)
11. b) (i) Explain with chemical reactions, the demineralization process of softening water. (8)
(ii) With a neat sketch, explain reverse osmosis method of desalination. (8)

12. a) (i) Discuss the mechanism of free radical polymerization. (8)
(ii) How will you obtain the following :
1. Nylon 6 : 6
2. Teflon. (4+4)

(OR)

12. b) (i) Distinguish Thermoplastics from Thermosetting plastics. Give atleast two examples for each. (8)
(ii) What is vulcanization? How does vulcanization improve the quality of rubber? Explain. (8)

13. a) (i) Discuss the factors affecting rate of adsorption. (8)
(ii) Derive Langmuir's adsorption isotherm. (8)

(OR)

13. b) (i) Explain the role of adsorbent in heterogeneous catalysis. (8)
(ii) What is chemisorption? How does it differ from adsorption? (8)

14. a) (i) With a neat block diagram, explain the functioning of a nuclear reactor. (8)
(ii) Explain the construction and functioning of a lead - acid battery. (8)

(OR)

14. b) (i) How does a Hydrogen - Oxygen fuel cell function? Explain. (8)
(ii) Write a brief note on advantages and limitations of
1. Solar energy
2. Wind energy (4 + 4)

15. a) (i) Explain the following as applicable to refractories
1. Thermal spalling
 2. Refractoriness
- (4 + 4)

- (ii) With a neat diagram, explain the functioning of any one solid lubricant.
- (8)

(OR)

15. b) (i) Explain the following terms:
1. Flash and fire points.
 2. Cloud and pour points.
- (4 + 4)

- (ii) Write a brief note on :
1. Application of carbon nano tubes
 2. Silicon carbide.
- (4 + 4)

*****THE END*****