

ANNA UNIVERSITY COIMBATORE
B.E. / B.TECH. DEGREE EXAMINATIONS : JAN / FEB 2010
REGULATIONS : 2008
FIRST SEMESTER
080010001 - ENGINEERING CHEMISTRY I
(COMMON TO ALL BRANCHES)

TIME : 3 Hours

Max.Marks : 100

PART - A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. Distinguish any two difference between Hard water and Soft water
2. Name the gases dissolved in water that cause corrosion
3. How are exhausted ion-exchange resins regenerated?
4. What is phosphate conditioning?
5. Define the term functionality
6. Why is Teflon highly chemical resistant?
7. List the properties of composites.
8. What are elastomers?
9. Give a note on the effect of increase of temperature on the adsorption of a gas on a solid surface?
10. What is an adsorption isotherm?
11. List the factors that affect adsorption?
12. Define the term interface
13. What are the merits of wind energy?
14. Why do fission and fusion reactions produce large quantities of energy?
15. List the main advantages of alkaline batteries?
16. Give a note on solar cell and its features.
17. Distinguish between Acidic and Basic refractories

18. Where do you find thermal spalling?
19. Define the terms i) fire point ii) flash point
20. List any four nano-materials.

PART - B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

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| 21. | a) Describe the procedure to estimate hardness by EDTA method | 6 |
| | b) What is desalination? Explain any one method of desalination. | 6 |
| 22. | a) Describe in detail various methods of potable water treatment | 8 |
| | b) Distinguish between addition and condensation polymerisation | 4 |
| 23. | a) Give the preparation, properties and uses of :
i) Nylon – 6:6 ii) Butyl rubber | 8 |
| | b) Write notes on polymer-matrix composites | 4 |
| 24. | a) Derive Langmuir adsorption isotherm. Write the factor on which adsorption depends | 6 |
| | b) Explain the various types of adsorption isotherm | 6 |

25. a) Write the differences between Physisorption and chemisorption 4
- b) With a neat sketch explain the functioning of $H_2 - O_2$ fuel cell 8
26. a) Explain the construction, working of lead- acid battery, with relevant sketches. 6
- b) Describe the breeder reactor. 6
27. a) Explain the characteristics of a good refractory? 6
- b) How are artificial abrasives prepared? Mention their uses 6
28. a) Draw and explain the structure of Graphite and its use as a solid lubricant 6
- b) How are carbon nano tubes produced? Discuss their applications 6

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