Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **18CH1004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **CHEMISTRY FOR COMPUTER SCIENCE AND ENGINEERING** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | | **Course Outcome** | | | | | **Marks** |
|  | **PART-A (10 X 1=10 MARKS)** | | | | | | | |
| 1. | Which among the following molecules contain ionic bond?  (a) NaCl (b) CH4  (c) CCl4 (d) CO2 | | CO1 | | | | | 1 |
| 2. | Among the following compounds, intramolecular hydrogen bonding is expected in | | CO1 | | | | | 1 |
| 3. | Which among the following is an example for a monomer   1. Ethylene (ii) PVC (iii) Nylon (iv) Bakelite | | CO2 | | | | | 1 |
| 4. | Provide an example for cross linking polymer. | | CO2 | | | | | 1 |
| 5. | What is the particle size range of nanoparticles? | | CO3 | | | | | 1 |
| 6. | The analytical technique used to determine the surface morphology of nanomaterials is \_\_\_\_\_\_\_.   1. SEM (ii) PXRD (iii) XRD (iv) Ball milling | | CO3 | | | | | 1 |
| 7. | ΔG = \_\_\_\_\_\_\_\_\_\_\_. | | CO4 | | | | | 1 |
| 8. | The anode of lead acid battery is \_\_\_\_\_\_\_\_\_   1. Pb (ii) graphite (iii) PbO2 (iv) Zn | | CO4 | | | | | 1 |
| 9. | Define: Unit Cell. | | CO5 | | | | | 1 |
| 10. | What are liquid crystals? | | CO6 | | | | | 1 |
|  |  | |  | | | | |  |
| **PART – B (6 X 3 = 18 MARKS)** | | | | | | | | |
| 11. | Distinguish the σ-bond and π-bond with suitable examples. | | | | CO1 | | 3 | |
| 12. | Differentiate thermosets and thermoplasts. | | | | CO2 | | 3 | |
| 13. | Explain the vulcanization of rubber. | | | | CO2 | | 3 | |
| 14. | Calculate the single electrode potential of zinc electrode dipped in 0.01 M ZnSO4 solution at 25o C? The standard electrode potential of Zn/Zn2+ system is 0.763 V at 25o C. | | | | CO4 | | 3 | |
| 15. | Describe Miller indices. | | | | CO5 | | 3 | |
| 16. | Categorize the liquid crystals. | | | | CO6 | | 3 | |
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| **PART – C (6 X 12= 72 MARKS)**  **(Answer any five Questions from Q.no 17 to 23. Q.No 24 is a Compulsory Question)** | | | | | | | | |
| 17. |  | Draw the molecular orbital diagram of N2 and O2. Compare their bond order, bond strength and magnetic properties. | | CO1 | | 12 | | |
|  |  |  | |  | |  | | |
| 18. | a. | Discuss the salient features of valence bond theory. | | CO1 | | 7 | | |
| b. | Explain the hybridization of ammonia. | | CO1 | | 5 | | |
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| 19. |  | Explain the synthesis of poly ethylene, poly vinyl chloride, bakelite and epoxy resin. | | CO2 | | 12 | | |
|  |  |  | |  | |  | | |
| 20. | a. | Describe the synthesis of nano materials using ball milling method. | | CO3 | | 6 | | |
| b. | Outline the applications of nano materials. | | CO3 | | 6 | | |
|  |  |  | |  | |  | | |
| 21. | a. | Derive Nernst equation for calculating electrode potential. | | CO4 | | 8 | | |
| b. | Summarise the significances of electrochemical series. | | CO4 | | 4 | | |
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| 22. | a. | Explain the construction of lead acid battery. Give the reactions during charging and discharging. | | CO4 | | 6 | | |
| b. | Discuss the construction of H2-O2 fuel cell with diagram. | | CO4 | | 6 | | |
|  |  |  | |  | |  | | |
| 23. | a. | Differentiate N- type and P- type semiconductors with examples. | | CO5 | | 8 | | |
| b. | Compare Schottky and Frenkel defects in crystals. | | CO5 | | 4 | | |
|  | **Compulsory:** | | | | | | | |
| 24. |  | Summarise the properties and applications of liquid crystals. | | CO6 | | 12 | | |