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

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

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| **Code :** | **19CH1002** | **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. | Water molecule exhibits dipole moment due to \_\_\_\_\_\_\_\_\_\_ structure. | CO1 | 1 |
| 2. | *o*-nitrophenol is less acidic than *p*-nitrophenol due to presence of \_\_\_\_\_\_\_ hydrogen bonding. | CO1 | 1 |
| 3. | Name one trifunctional monomer. | CO2 | 1 |
| 4. | Phenol-formaldehyde resin is commercially called as \_\_\_\_\_\_\_\_\_. | CO2 | 1 |
| 5. | C60 molecule has a molecular diameter of \_\_\_\_\_\_\_\_\_\_. | CO3 | 1 |
| 6. | The assigned electro potential of hydrogen electrode is…………… | CO3 |  |
| 7. | In the cell represented by Cd/Cd2+//Cu2+/Cu, oxidation occurs at the \_\_\_\_\_\_\_\_ electrode. | CO4 | 1 |
| 8. | Which type of liquid crystal form a helix? | CO5 | 1 |
| 9. | What is the speed of propagation of electromagnetic wave? | CO6 | 1 |
| 10. | In geometrical isomers *cis* isomers absorb at \_\_\_\_\_\_\_\_ wavelength as compared to *trans* isomers, in UV-vis spectroscopy. | CO6 | 1 |

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| **PART – B (6 X 3 = 18 MARKS)** | | | |
| 11. | Why is HF more polar than HI? | CO1 | 3 |
| 12. | How are poymers classified based on tacticity? Give examples. | CO2 | 3 |
| 13. | Compare characteristics of the top-down and bottom-up approaches of synthesis of nanomaterials. | CO3 | 3 |
| 14. | Define EMF series giving its significance. | CO4 | 3 |
| 15. | What are thermotropic liquid crystals? | CO5 | 3 |
| 16. | What are chromophores? | 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. | a. | What is metallic bond? Explain it on the basis of molecular orbital theory. | CO1 | 6 |
| b. | How does hydrogen bond arise? Explain the types of hydrogen bond with examples. | CO1 | 6 |
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| 18. | a. | Explain the term hybridization by giving an account of the different types of hybridization with example. | CO1 | 6 |
| b. | Discuss the role of any three ingredients used in compounding of plastics with example. | CO2 | 6 |
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| 19. | a. | Compare the characteristics of thermosetting and thermoplastic polymers. | CO2 | 6 |
| b. | Explain the structure and applications of fullerenes. | CO3 | 6 |
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| 20. | a. | Discuss the applications of nanotechnology. | CO3 | 6 |
| b. | Explain the steps involved in the microfabrication of nanomaterials. | CO3 | 6 |
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| 21. | a. | Derive Nernst equation and give its significance. | CO4 | 6 |
| b. | Explain the construction, charging and discharging reactions of lead-acid battery. | CO4 | 6 |
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| 22. | a. | Explain the construction and working of a dry cell. | CO4 | 6 |
| b. | Discuss the structural requirements of a compound to form liquid crystals. | CO5 | 6 |
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| 23. | a. | Explain the applications of liquid crystals in display systems. | CO5 | 6 |
| b. | Explain the principle and applications of UV-visible spectroscopy. | CO6 | 6 |
|  |  | **Compulsory:** | |  |
| 24. | a. | Describe the construction and working of hydrogen oxygen fuel cell. | CO4 | 6 |
| b. | Explain the principle and applications of IR spectroscopy. | CO6 | 6 |