Reg. No.

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

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| **Code :** | **18CH1006** | Duration : | **3hrs** |
| **Sub. Name :** | **APPLIED CHEMISTRY** | Max. marks : | **100** |

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| **Q.**  **No.** | **Questions** | **Course Outcome** | **Marks** |
| **PART – A (10X1 = 10 MARKS)** | | | |
| 1. | The types of bonding present in water molecule are \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_ | CO1 | 1 |
| 2. | H2O is liquid where as H2S is gas. Reason out. | CO1 | 1 |
| 3. | Give two examples for biopolymers. | CO2 | 1 |
| 4. | The process of heating natural rubber with sulphur is known as \_\_\_\_\_\_\_\_. | CO2 | 1 |
| 5. | Name any two nanomaterials present in nature. | CO3 | 1 |
| 6. | The number of carbon atoms in Bucky ball is   1. 60 (b) 72 (c) 18 (d) 100 | CO3 | 1 |
| 7. | Define chirality. | CO3 | 1 |
| 8. | Name the two conformers of ethane. | CO4 | 1 |
| 9. | The order of SN2 and E2 reactions are \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_ respectively. | CO5 | 1 |
| 10. | Give the resonance structure in benzene. | CO5 | 1 |

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| **PART – B (6 X 3 = 18 MARKS)** | | | |
| 11. | Using MO theory find out the bond order of a molecule which has only two electrons in the bonding MO’s. | CO1 | 3 |
| 12. | Differentiate between addition and condensation polymer. | CO2 | 3 |
| 13. | Give suitable examples for 0-D, 1-D, 2-D nanomaterials. | CO3 | 3 |
| 14. | Define stereoisomerism. | CO4 | 3 |
| 15. | Classify the following as electrophile and nucleophile.  a) carbanion b) carbocation c) H+ | CO5 | 3 |
| 16. | Calculate the number of vibrational degrees of freedom for water molecule  (H2O, V shape). | 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. | Discuss the postulates of MO theory. | CO1 | 8 |
| b. | Brief the formation of ionic bond in sodium chloride. | CO1 | 4 |
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| 18. |  | List down the moulding ingredients and their roles in plastics. | CO2 | 12 |
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| 19. | a. | ‘Nanomaterials are next generation materials’. Justify. | CO3 | 4 |
| b. | Describe the synthesis of nanomaterials via sol gel method. | CO3 | 8 |
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| 20. | a. | Apply Cahn- Ingold- Prelog rule to assign priority for tartaric acid. | CO4 | 6 |
| b. | Illustrate the conformational isomerism in ethane molecule. | CO4 | 6 |
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| 21. |  | Write a short note on E1 and E2 mechanism. | CO5 | 12 |
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| 22. | a. | Write a short note on preparation, properties and application of PVC. | CO2 | 8 |
| b. | Differentiate between thermoplastics and thermosetting plastics. | CO2 | 4 |
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| 23. | a. | Draw the Molecular orbital energy level diagram for N2 molecule and predict the bond order. | CO1 | 6 |
| b. | Explain the synthesis of nanomaterials by ball milling method | CO3 | 6 |
|  | | **Compulsory:** | | |
| 24. | a. | Write a short note on chromatographic techniques. | CO6 | 6 |
| b. | Identify the relation between energy, wavelength, frequency and wave number. | CO6 | 6 |