**VIGNAN INSTITUTE OF TECGHNOLOGY AND SCIENCE, Deshmukhi, Nalgonda**

**B.Tech-First Year-**Semester-II

**Subject:** Engineering Chemistry **Academic Year-**2022-23

**Important Questions for** Unit Exam

1. **Polymeric materials**

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| **Sl.No** | | **Question** | **Marks** | **CO** | **PO** | **BTL** |
| **1.** | **a.** | Differentiate addition and condensation polymerization. | [1M] | 3 | 1-8, 11-12 | IV |
| **b.** | Classify the polymers with examples. | [1M] | 3 | 1-8, 11-12 | II |
| **c.** | Describe the mechanism of free radical addition. | [10M] | 3 | 1-8, 11-12 | II |
| **2.** | **a.** | Differentiate Thermoplastic and Thermosetting plastics. | [1M] | 3 | 1-8, 11-12 | IV |
| **b.** | List the applications of Fiber Reinforced Plastics (FRP). | [1M] | 3 | 1-8, 11-12 | I |
| **c.** | Explain preparation, properties and applications of Nylon 6:6 and Terylene. | [10M] | 3 | 1-8, 11-12 | II |
| **3.** | **a.** | Write the preparation of PVC | [1M] | 3 | 1-8, 11-12 | I |
| **b.** | List the applications of PVC? | [1M] | 3 | 1-8, 11-12 | I |
| **c.** | Explain preparation, properties and engineering applications of Bakelite and Teflon. | [10M] | 3 | 1-8, 11-12 | II |
| **4.** | **a.** | What is the chemical name of the Natural rubber | [1M] | 3 | 1-8, 11-12 | I |
| **b.** | List the disadvantages of Natural rubber | [1M] | 3 | 1-8, 11-12 | I |
| **c.** | Define vulcanization and write the advantages of vulcanized rubber. | [10M] | 3 | 1-8, 11-12 | I |
| **5** | **a.** | List the applications of Buna-S rubber? | [1M] | 3 | 1-8, 11-12 | I |
| **b.** | Discuss the preparation of Buna-S rubber? | [1M] | 3 | 1-8, 11-12 | II |
| **c.** | Explain preparation, properties and engineering applications of Butyl and Thiokol rubber. | [10M] | 3 | 1-8, 11-12 | II |
| **6.** | **a.** | Write the characteristics of conducting polymers. | [1M] | 3 | 1-8, 11-12 | I |
| **b.** | Classify the conducting polymers. | [1M] | 3 | 1-8, 11-12 | II |
| **c.** | Describe the mechanism of conduction in trans-polyacetylene. | [10M] | 3 | 1-8, 11-12 | II |
| **7.** | **a.** | List the applications of conducting polymers? | [1M] | 3 | 1-8, 11-12 | I |
| **b.** | Discuss the advantages of Biodegradable polymers? | [1M] | 3 | 1-8, 11-12 | II |
| **c.** | Explain preparation and engineering applications of  Poly lactic acid and poly vinyl alcohol. | [10M] | 3 | 1-8, 11-12 | II |

1. **Energy sources**

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| **Sl.No** | | **Question** | **Marks** | **CO** | **PO** | **BTL** |
| **1.** | **a.** | Define fuel and classify the fuels. | [1M] | 4 | 1-8, 11-12 | I |
| **b.** | Explain the characteristics of good fuel. | [1M] | 4 | 1-8, 11-12 | II |
| **c.** | Discuss the Proximate analysis of coal with significance. | [10M] | 4 | 1-8, 11-12 | II |
| **2.** | **a.** | Classify different forms of the coal. | [1M] | 4 | 1-8, 11-12 | II |
| **b.** | Define cracking of petroleum? | [1M] | 4 | 1-8, 11-12 | I |
| **c.** | Discuss the ultimate analysis of coal with significance. | [10M] | 4 | 1-8, 11-12 | II |
| **3.** | **a.** | List the advantages and disadvantages of TEL. | [1M] | 4 | 1-8, 11-12 | I |
| **b.** | State the function of ethyl bromide added to petrol? | [1M] | 4 | 1-8, 11-12 | I |
| **c.** | Describe refining of petroleum. | [10M] | 4 | 1-8, 11-12 | II |
| **4.** | **a.** | Define knocking and write about octane rating. | [1M] | 4 | 1-8, 11-12 | I |
| **b.** | List the effects of knocking. | [1M] | 4 | 1-8, 11-12 | I |
| **c.** | What is cracking of petroleum? Explain the moving bed catalytic cracking. | [10M] | 4 | 1-8, 11-12 | I |
| **5** | **a.** | List the characteristics of LPG. | [1M] | 4 | 1-8, 11-12 | I |
| **b.** | Define the composition of natural gas | [1M] | 4 | 1-8, 11-12 | I |
| **c.** | Describe the synthesis of synthetic petrol by Fischer-Tropsch’s process. | [10M] | 4 | 1-8, 11-12 | II |
| **6.** | **a.** | List the applications of CNG. | [1M] | 4 | 1-8, 11-12 | I |
| **b.** | Explain how to estimate HCV & LCV using dulongs formula. | [1M] | 4 | 1-8, 11-12 | I |
| **c.** | Explain trans esterification and list the advantages of biodiesel. | [10M] | 4 | 1-8, 11-12 | II |

1. **Energy sources**

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| **Sl.No** | | **Question** | **Marks** | **CO** | **PO** | **BTL** |
| **1.** | **a.** | List the composition of Puzzolana cements? | [1M] | 5 | 1-8, 11-12 | I |
| **b.** | Explain why cements are called hydraulic cements? | [1M] | 5 | 1-8, 11-12 | II |
| **c.** | Define Portland cement? Explain the different ingredients of cement. | [10M] | 5 | 1-8, 11-12 | I |
| **2.** | **a.** | List the composition of Natural cement. | [1M] | 5 | 1-8, 11-12 | I |
| **b.** | List the disadvantages of using excess of lime during manufacture of cement? | [1M] | 5 | 1-8, 11-12 | I |
| **c.** | Explain setting and hardening of cement. | [10M] | 5 | 1-8, 11-12 | II |
| **3.** | **a.** | Explain thermo responsive materials with examples. | [1M] | 5 | 1-8, 11-12 | II |
| **b.** | State the roles of smart materials | [1M] | 5 | 1-8, 11-12 | I |
| **c.** | Classify lubricants with examples. | [10M] | 5 | 1-8, 11-12 | II |
| **4.** | **a.** | Define shape memory thermo receponsive materials? | [1M] | 5 | 1-8, 11-12 | I |
| **b.** | State two examples of thermo responsive polymers used for drug delivery. | [1M] | 5 | 1-8, 11-12 | I |
| **c.** | Explain the various mechanisms of lubrication in detail. | [10M] | 5 | 1-8, 11-12 | I |
| **5** | **a.** | Discuss the chief characteristics required for a good lubricant? | [1M] | 5 | 1-8, 11-12 | II |
| **b.** | Define Viscosity of a lubricant. | [1M] | 5 | 1-8, 11-12 | I |
| **c.** | Discuss short notes on:  a) Cloud point and Pour point. b) Flash and Fire point. | [10M] | 5 | 1-8, 11-12 | II |
| **6.** | **a.** | Define and classify lubricants. | [1M] | 5 | 1-8, 11-12 | I |
| **b.** | Discuss the effect of temperature on viscosity? Explain. | [1M] | 5 | 1-8, 11-12 | I |
| **c.** | Describe the thermoresponsive materials?  Write the applications of poly (N isopropylacrylamide) and poly acrylicamide. | [10M] | 5 | 1-8, 11-12 | II |