ABES Engineering College, Ghaziabad
B.Tech. First Year, Odd Semester, Session -2023-24
Engineering Chemistry (BAS102)
Question Bank (Previous Year University Questions and Practice questions)

1. Illustrate the ion exchange process of water softening.
2. On which principle Bomb Calorimeter works? How it is used to determine the GCV & LCV of a fuel?
3. Calculate the amount of lime and soda required for treatment of 12,000 liters of water having following salts: MgCl2=10 ppm, $CaCl_2$=8ppm, $Ca(HCO_3)_2$=20ppm,$Mg(HCO_3)_2$=10 ppm, $CaSO_4$= 15ppm, NaCl=15ppm. (Both lime and soda is 90% pure).
4. Discuss proximate analysis of coal. Why is it called as proximate analysis?
5. What is ultimate analysis of coal?
6. Discuss the preparation, properties and applications of Nylon 6,6, Kevlar and Lucite, Buna-S.
7. Discuss the classification and applications of Conducting polymers.
8. What are Composite materials? How composites can be classified based on reinforcement and layers? Write the potential applications of composites.
9. Illustrate how Grignard Reagent can be utilized for the synthesis of 1^0, 2^0 and 3^0 alcohols by taking suitable examples.
10. Discuss biodegradable polymers with suitable examples and potential applications.
11. Differentiate between thermoplastic and thermosetting polymers.
12. Differentiate between condensation and addition polymerisation.
13. What is the tacticity of polymers?
14. Discuss the preparation, properties and applications of Nylon 6, Teflon, Dacron, Orlon, Buna-N
15. Give synthesis of Lithium Aluminium Hydride. How will you synthesize primary, secondary and tertiary amine with the help of $LiAlH_4$?
16. What are polymer dendrimers and polymer blends?
17. Discuss the preparation, properties and applications of Nylon 6, Thiokol and Bakelite.
18. Give the composition and manufacturing of biogas.
19. What is Reverse Osmosis? How it is used to treat to hardness of water?
20. Calculate the HCV and LCV of a 3.2 gm of fuel having the following parameters: Weight of water in bomb calorimeter=2500gm Water equivalent of calorimeter=2000 gm Initial temperature=26.8°C Final temperature= 28°C Acid correction=12 cal Cotton thread correction= 15 cal Fuse wire correction= 10 cal Cooling Correction= 1.2°C Amount of Hydrogen=5%.
21. Discuss various parameters of proximate analysis of coal. Calculate the HCV and LCV of a fuel having C=81%, S=5%, N=3%, O=4%, H=6%.