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. Draw a Molecular orbital diagram of CO and CO^+, and explain the values of bond length for both molecules.
2. Draw a Molecular orbital diagram of N_2, N_2^- and N_2^+, and arrange their bond lengths in ascending order.
3. Draw a Molecular orbital diagram of NO, NO^- and NO^+, and arrange their bond order in descending order.
4. Explain CNT and SPIONS giving structure and applications.
5. Elaborate classification and applications of liquid state. Describe Nematic, Cholesteric and Smectic Liquid crystal.
6. Draw a Molecular orbital diagram of O_2 and on the basis of the diagram prove that Oxygen is paramagnetic in nature.
7. Explain the Buckminster fullerene providing the structure and properties.
8. Explain the Graphite providing the structure and properties.
9. Explain the 12 principles of Green Chemistry.
10. Give the green synthesis of Paracetamol
11. Give the green synthesis of Adipic acid.
12. Discuss the zeolite process of water softening with reactions and diagram.
13. Differentiate between scale and sludge.
14. Differentiate between priming and foaming.
15. Elaborate postulates of Molecular Orbital Theory.
16. An exhausted zeolite is regenerated by passing 500 litres of NaCl having strength 15 gm/L of NaCl. What is the hardness of water sample if the volume treated is 30, 000 litres.
17. Convert the following
    a) 600 ppm into degree french and degree clark
    b) 350 mg/L $CaSO_4$ hardness into $CaCO_3$ equivalents
18. A sample of water is analysed as given below $Ca(HCO_3)_2$=4.86mg/L, $Mg(HCO_3)_2$ =5.84mg/L, $CaSO_4$=6.8mg/L, $MgSO_4$=8.40mg/L. Calculate temporary & permanent hardness of water.