	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)** **Unit-2 Stereochemistry and Spectroscopy**
1.	**Calculate number of ^{1}H NMR signals for following compounds: C_6H_6, CH_3CH_2OH, CH_3OCH_3, CH_2Cl-CH_2Cl, CH_2Br-CH_2Cl , CH_2=CH_2Br.**
2.	**Discuss shielding and de-shielding in NMR spectroscopy.**
3.	**Define Lambert- Beer's Law.**
4.	**Calculate the transmitted power of the UV light if the radiant power of a solution is reduced to 80%.**
5.	**Differentiate between δ scale and τ scale for ^{1}HNMR spectroscopy.**
6	**What are the various electronic transitions of UV-Visible spectroscopy?**
7.	**Enlist the selection rules of UV-Visible spectroscopy.**
8.	**Calculate the number of vibrations for given molecules: C_2H_2, C_6H_6, CH_4.**
9.	**Calculate the no. of vibrations for given molecules: CO_2, H_2O, C_3H_6.**
10.	**Give the examples of suitable molecules whose prove potential CHIRAL DRUGS.**
11.	**Differentiate between hyperchromic shift and hypochromic shift with examples**
12.	**Differentiate between chromophore and auxochrome with suitable example.**
13.	**Differentiate between Bathochromic and Hypsochromic shift with suitable example.**
14.	**Why TMS is taken as solvent for ^{1}HNMR spectroscopy?**
15.	**What is atropisomerism? Explain with examples.**
16.	**Enlist the selection rules of IR spectroscopy.**
17.	**Deduce different fundamental modes of vibration in IR spectroscopy by taking the example of AX_2 type molecule.**
18.	**What are the various regions of IR spectroscopy?**
19.	**Discuss the significance of Functional group region and Fingerprint region in IR spectroscopy?**
20.	**An organic compound X with molecular formula C_3H_6O absorbs at 1720 cm^{-1} strongly and gives negative Tollens Test. When it is reduced another compound Y (C_3H_8O) appears. In Y absorption at 1710 cm^{-1} was missing and a band at about 3600cm^{-1} appeared. Establish the structure of X and Y?**
21.	**A compound having concentration 10^{-3} g/L resulted into absorbance value 0.50 at wavelength 510 nm using 1 cm cell. Calculate the absorptivity and molar absorptivity values molecular weight of compound is 360.**