

ASSIGNMENT

B.Sc. (P.Sci.) VI Semester

(Application of UV-Vis. & IR Spectroscopy in organic compounds)

- 1. What are various types of electronic transitions in UV-Visible spectroscopy?**
- 2. What is the role of solvents in electronic transitions?**
- 3. Define chromophore and auxochrome. Write down the type of shifts which are produced by different substituent groups.**
- 4. How will you differentiate between the following compounds using UV spectroscopy?**
 - a. Acetone and Methyl phenyl ketone**
 - b. Cis and trans alkene**
- 5. Write down the principle of IR spectroscopy. Name the different regions of vibrational frequency.**
- 6. What are the factors influencing the vibrational frequency?**
- 7. How will you differentiate between intermolecular and intramolecular hydrogen bonding in alcohols and phenols using IR spectroscopy.**
- 8. How will you distinguish between nitro and amide group by using IR spectroscopy.**
- 9. Arrange the following in increasing order of their vibrational frequencies and give reason: C-F, C-Cl, C-Br, C-I**
- 10. How will you distinguish between the following compounds using IR spectroscopy?**

- a. Ethyl alcohol and diethyl ether**
- b. Acetic acid and acetone**
- c. Acetone and acetaldehyde**
- d. Primary, secondary and tertiary amine**
- e. Cis and trans alkene**
- f. C-C and C=C**