

Assignment  
CHE-304  
Sem V 2017  
Unit Test I

UNIT I

Questions for Long Answer

Unit – 1 A

- (1) What is UV spectroscopy? Discuss  $\pi \rightarrow \pi^*$  transition &  $n \rightarrow \sigma^*$  transition.
- (2) Explain solvent effect of the  $\pi \rightarrow \pi^*$  and  $n \rightarrow \pi^*$  transition

Unit – 1 B

- (1) How to define Cis- Trans component with the help of total  $\lambda$  max.
- (2) How to define Keto- Enol component with the help of total  $\lambda$  max.

UNIT 2

Questions for Long Answer

1. Explain the phenomenon called Raman effect.
2. Explain the basic principles of IR spectroscopy.
3. Write how sample of liquid and solid are prepared for recording their infrared spectra?
4. Determine the structure of  $\text{CO}_2$  and  $\text{N}_2\text{O}$  by using IR and Raman spectroscopy.
5. Compare IR and Raman spectra.

Questions for Short Answer

1. What is a good solvent for inorganic compounds in Raman spectroscopy?
2. Which is the most common source of radiation have been used in infrared spectroscopy?
3. The Raman lines on the lower frequency side are called \_\_\_\_\_ lines and those on the higher frequency side are known as \_\_\_\_\_ lines.
4. Raman Spectroscopy is generally carried out in \_\_\_\_\_ region.
5. Rank the following bonds in order of increasing stretching frequency ( $\text{cm}^{-1}$ ) in IR spectroscopy:  
OH,  $\text{C} \equiv \text{N}$ , and  $\text{C} = \text{O}$ .
6. Write any one use of Raman spectra.
7. Define Raman scattering.

## **Unit-III-A**

### **Questions for Long Answer**

- Q-1 Explain principle and instrumentation of NMR.
- Q-2 Why we use TMS (Tetra methyl silane) in NMR?
- Q-3 Explain position of NMR signal shielding and Desheilding.

### **Questions for Short Answer**

- Q-1. What is chemical shift in NMR spectra?
- Q-2. Give the structure of TMS (Tetra Methyl Silane)
- Q-3 Which type of nuclei can give NMR spectra?

## **UNIT IV**

### **Questions for Long Answer**

#### Unit – IV A

- (1) Discuss UV Spectrophotometer with diagram.
- (2) Write Lambert's & Beer's law and prove the Eq.  $\log I_t / I_0 = -Kbc$

#### Unit – IV B

- (1) Write short note on total consumption burner & premix burner.
- (2) Discuss Flame Emission Spectroscopy (FES) and Atomic Absorption Spectroscopy (AAS).
- (3) Discuss Inductively Coupled Plasma Emission Spectroscopy (ICPES)