UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program : Seventh Semester – Fall 2021

Roll No. .....

Paper: Analytical Chemistry (Sp. Theory-II) Course Code: CHEM-413 Time: 3 Hrs. Marks: 60

Q.1. Answer the following short questions: (15x2=30)

1. What Kind of molecules show IR Spectra?
2. How do you determine the No. of Vibrational modes?
3. Why laser is used in Raman Spectroscopy?
4. What are different modes of vibration in IR spectroscopy?
5. What is the difference between chromophore and auxochrome?
6. Why is Raman Spectroscopy method said to be better than FTIR spectroscopy in analyzing polymers?
7. What do you mean by electromagnetic spectrum?
8. What does it mean to have high vibrational energy?
9. Describe different types of Lasers?
10. What are the detectors used in IR spectrophotometer?
11. Difference between Atomic absorption spectroscopy and Atomic fluorescence spectroscopy?
12. How Plasma is generated In Inductively coupled plasma?
13. What does ICP measure?
14. Which wavelength selector is used in UV visible spectrophotometer?
15. Which material are used to make sample cell for UV Visible Spectrophotometer?

Answer the following questions. (3x10=30)

Q.No: 2 a) Comparison between Raman and IR Spectroscopy. (5)

b) Explain various components of Raman spectrometer. (5)

Q.No: 3 a) What is meant by Atomic fluorescence spectroscopy? (5)

b) Instrumentation and Applications of absorption photometry. (5)

Q.No: 4 a) State beer's law? How is transmittance defined and how does it relate to absorbance? (5)

b) Give instrumentation and Applications of fluorescence spectroscopy. (5)