

CARMEL COLLEGE OF ARTS, SCIENCE & COMMERCE FOR  
WOMEN,  
NUVEM-GOA

SEMESTER END EXAMINATION AUGUST 2020

Semester: VI of B.Sc.

Course name & Code: Selected Instrumentation in Chemistry CHD103

Total marks: 30 Date: 10/08/2020 Duration: 2 hours Total No of pages: 01

*Instructions: 1. All questions are compulsory  
2. Figures to the right indicate marks*

**Q1. Answer any FIVE of the following:** (2×5=10)

1. Convert 2000Å to cm, cm<sup>-1</sup> and Hz.
2. A solution of a substance having molar absorptivity of 14000 gives an absorbance reading of 0.85 using a cell of 1cm thickness. Calculate the concentration and percentage transmittance
3. Define wavelength and frequency. Give their respective units
4. State any two limitations of AAS.
5. Give any four applications of Fluorimetry.
6. Explain any four factors that affect fluorescence
7. Enlist the instrumental factors that affect DTA curve
8. State the principle of Mass Spectrometry

**Q2. Answer any FOUR of the following:** (5×4=20)

1. Cu<sup>+2</sup> was combined with a chelating agent. The fluorescing chelate gave a slope of 15 intensity per 1.2mg/L of Cu<sup>+2</sup> and interrupted the origin. Calculate the Cu<sup>+2</sup> concentration in the system which gave an intensity reading of 85.
2. The concentration of a standard solution of vanadium chelate is 0.5mg of Vanadium/mL. the percentage transmittance by this solution when placed in a cell of thickness 10 mm is 65. An unknown solution when placed in this very cell transmits 76% light. Find out the concentration of the unknown solution.
3. with the help of neat labeled diagram explain the working of premix burner.
4. Write a note on Quadrapole mass analyzer
5. Explain how electro spray ionization is carried out in Mass spectrometry
6. A solution of a substance having molar absorptivity of 14000 gives an absorbance reading of 0.85 using a cell of 1cm thickness. Calculate the concentration and percentage transmittance