

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

SEMESTER END EXAMINATION JULY 2021

Semester: VI of B.Sc.

Course name & Code: **Selected Instrumentation in Analytical Chemistry CHD103**

Date: 17/07/2021 Duration: 2 hours Total No of pages: 02 Total marks - 30

Q1. Answer **ANY 5** of the following questions

(2x5=10M)

- a) Enlist deviations from Beer Lambert's Law
- b) What is the principle of UV-visible Spectroscopy?
- c) With the help of a neat and labelled diagram explain the working of any one type of burner used in atomic absorption spectroscopy.
- d) Explain the effect of polar solvents on separation of mixture of components in HPLC
- e) State the differences between single beam and double beam mass spectrometry instruments. 6.
- f) Explain the principle involved in flame photometry
- g) Describe any 2 components used in the instrumentation of GC.
- h) What are the basic components of instruments for analysis?

Q2. Answer **ANY 4** of the following questions

(4x5=20M)

- a) With the help of a neat labelled diagram explain the DTA technique
- b) The concentration of a standard solution of iron chelate is 0.6mg of iron /mL. The percentage transmittance by this solution when placed in a cell of 2 cm thickness is 70. An unknown solution when placed in the same cell transmit 80% light. Find out
 - i. The absorbance & absorptivities of both these solutions
 - ii. The concentration of the unknown solution
 - iii. The absorbance of the unknown solution if its concentration is tripled
- c) State Bragg's law and derive its mathematical equation.
- d) With a neat labelled diagram explain electron impact ionization.
- e) Give a schematic representation or block diagram representation for the set-up of HPLC technique. Also explain all the components used in the instrumentation.
- f) With the help of a neat labelled diagram explain the working of single beam fluorimeter.