Roll No.: _____ **Enrolment No._____**

PARUL UNIVERSITY

PARUL INSTITUTE OF PHARMACY AND RESEARCH

B.PHARMSEVENTH SEMESTER

SECOND INTERNAL THEORY EXAMINATION: 2022-23

Subject Name: Instrumental Methods of Analysis
Subject Code: BP701T **Date: 07/09/2022**
Time: 07:45am – 09:00 am **Total Marks: 30**

Instructions:
1. Figures to the right indicate full marks.
2. Make suitable assumptions wherever necessary.

Q.1 Multiple Choice Questions:

(1) The IR region most widely used for qualitative analysis is **01**

a) Near IR b) Mid IR c) Far IR d) All of the Above

(2) In FTIR, initially spectra is recorded as? **01**

a) Volts vs time (b) % Transmittance vs concentration(c) Absorbance vs Concentration (d) Absorbance vs time

(3) Which movement is required for the IR spectroscopy? **01**

(a) Dipole movement(b)Spin movement(c) Round movement (d) All of the Above

(4) Which detector are detected IR radiation by potential different? **01**

a) Thermocouple b) Bolometers c) Thermistor d) None of These

(5) What is the nature of mobile phase in reverse phase chromatography? **01**

(a) Polar (b) Non Polar (c) Mixture of both (d) None of above

(6) Solvent programming, also called gradient elution, involves. **01**

(a) Changing the column length (b) Using the mobile phase composition

(c) Successive injection of sample (d) Changing the mobile phase composition

(7) Which of the following is not true with respect to reciprocating pump? **01**

(a) Syringe type pump (b) ready adaptability to gradient elution

(c) high output pressures (up to 10,000 psi) (d) constant flow rates

(8) Which detector are used in Fluorimetry? _____. **01**

(a) Photo voltaic cell (b) PMT (c) Photo tube (d) All of the above

(9) A state in which electron are unpaired but opposite spin **01**

(a) Singlet ground state (b) Doublet state (c) Triplets state (d) Singlet excited state.

(10) A state in which all the electron in a molecule are paired? **01**

(a)Singlet ground state (b) Doublet state (c) Triplets state (d) Singlet excited state.

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Q.2 Long Answers: (Any One)

1) What is the principle of Fluorescence Spectroscopy? Explain neat and clean labelled Jablonski Diagram with details. **10**

2) Draw neat and clean Labelled diagram of HPLC Instrumentation and explain Each Components in details. **10**

Q.3 Short Answers: (Any Two)

1) Write a short not on fundamental modes of vibrations with Examples. **05**
2) Enlist IR detector, Explain in Details. **05**
3) Write a short note on sample handling in IR and factors affecting vibrations **05**