

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**

**Supplementary End Semester Examination – Summer 2022**

**Course: B. Pharmacy**

**Sem: VII**

**Subject Name: Instrumental Methods of Analysis**

**Subject Code: BP701T**

**Max Marks: 75**

**Date:12/07/2022**

**Duration: 3.45 Hr.**

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**Instructions –**

- 1. All questions are compulsory**
  - 2. Answers to MCQs should be written in full sentences**
  - 3. Draw diagrams / figures wherever necessary**
  - 4. Figures to right indicate full marks**
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**Q. 1. Multiple Choice Questions (All the questions are compulsory) 20 x 1 = 20**

i) A reversible reaction in which free mobile ions of solid are replaced from different ions of similar charge is the basis of

- |                                |                       |
|--------------------------------|-----------------------|
| a) Paper chromatography        | b) Gas Chromatography |
| c) Ion exchange Chromatography | d) Gel Chromatography |

ii) Following compound is not used in ion exchange Chromatography

- |               |              |
|---------------|--------------|
| a) Zerolite   | b) Amberlite |
| c) De-acidite | d) Sephadex  |

iii) Gel chromatography is also called as.....

- |                                  |                            |
|----------------------------------|----------------------------|
| a) Ion exchange Chromatography   | b) Affinity chromatography |
| c) Size exclusive chromatography | d) HPTLC                   |

iv) Gel Chromatography in which packing material is hydrophilic is called as.....

- |                                  |                                  |
|----------------------------------|----------------------------------|
| a) Gel filtration chromatography | b) Gel permission chromatography |
| c) Gas Chromatography            | d) Paper chromatography          |

v) Following compound is used as a soft gel in Gel Chromatography

- a) Zerolite
- b) Amberlite
- c) Activated carbaon
- d) Dextran

vi) Which polymer is often used for matrix material in affinity chromatography?

- a) Cellulose
- b) Agarose
- c) Dextrose
- d) All of above

vii) The intensity of the scattered light is usually measured at which angle?

- a)  $90^\circ$
- b)  $70^\circ$
- c)  $60^\circ$
- d)  $44^\circ$

viii) The choice of technique in case of less concentration of suspended particles is \_\_\_\_\_.

- a) Nephelometry
- b) Turbidimetry
- c) Both (i) & (ii)
- d) None of the above

ix) Which of the following is used as source of radiation in IR?

- a) Xenon discharge lamp
- b) Mercury arc
- c) Tungston lamp
- d) Deuterium lamp

x) Sodium ion produces \_\_\_\_\_ flame.

- a) Blue
- b) Green
- c) Red
- d) Yellow

xi) Scissoring vibration occurs when two atom move \_\_\_\_\_ toward each other.

- a) back & near
- b) front & near
- c) back & forth
- d) none of the above

xii) In Atomic absorption spectroscopy, which of the following is the generally used as radiation source.

- a) Xenon discharge lamp
- b) Hollow cathode lamp
- c) Tungston lamp
- d) Deuterium lamp

xiii) The measurement of the intensity of the \_\_\_ light as a function of the concentration of the dispersed phase form the basis of nephelometric analysis.

- a) Scattered
- b) transmitted
- c) Absorbed
- d) refracted

xiv) Which of the following is useful as a stationary phase in RP system?

- a) Cellulose powder
- b) C-18 hydrocarbon
- c) Starch
- d) Kiesleguhr

xv) Which of the following solvent is non-polar in nature?

- a) Water
- b) methanol
- c) Ethanol
- d) n-hexane

xvi) Ion exchangers are.....

- a) water insoluble
- b) water soluble
- c) freely soluble in water
- d) none of these

xvii) The time between injection of a sample & the appearance of a solute peak at the detector is called as-----

- a) Retention factor
- b) Retention time
- c) Retention volume
- d) Resolution

xviii) Which one of the following is not a component of Chromatography?

- a) Column
- b) Detector
- c) Magnet
- d) Pump

xix) When stationary phase and mobile phase is liquid then that technique is called as...

- a) Adsorption chromatography
- b) Partition chromatography
- c) Gel chromatography
- d) Electrophoresis

xx) The movement of the substance relative to the solvent front in a given chromatographic system called as-----

- a) Rf value
- b) Retention time
- c) K- value
- d) Retention volume

**Q. 2. Long Answers (Answer 2 out of 3)**

**2 x 10 = 20**

- i) Draw a net labeled diagram of double beam UV spectroscopy & discuss its instrumentation.
- ii) What is paper chromatography? Explain various paper chromatographic techniques.
- iii) What is HPLC? Describe instrumentation of HPLC.

**Q. 3. Short Answers (Answer 7 out of 9)**

**7 x 5 = 35**

- i) Explain different types of electrons involved in interaction with UV radiation and transition occurs in inorganic and organic compounds?
- ii) Give principle and application of fluorimetry.
- iii) Explain the mode of vibration of atoms in IR.
- iv) Explain the principle involve in Flame photometry.
- v) What is electrophoresis? Explain in brief various types of Electrophoresis
- vi) Describe various detectors used in Gas Chromatography.
- vii) Draw a net labeled diagram of GC. Describe columns used in GC.
- viii) What is ion exchange chromatography? Give its applications
- ix) What is gel chromatography? Classify gels with suitable example.

-----END OF THE PAPER-----