

Vision – To emerge as a premier institute offering quality education in pharmaceutical sciences.

Mission – To create knowledgeable and ethical professionals capable of fulfilling the needs in health care systems.

SUBJECT: MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

(M PHARM SEMESTER I CBCS R 2019)

SAMPLE MCQS

Select the right option

Each correct answer carries two marks

SR NO

- 1 Molecular groups that absorb visible or UV light are called as
 - a. Pharmacophores
 - b. Auxochromes
 - c. Chromophores
 - d. None

- 2 The Phenomenon of Fermi resonance is observed in
 - a. Mass Spectroscopy
 - b. IR Spectroscopy
 - c. Both A&B
 - d. UV Spectroscopy

- 3 Cis and trans isomers can be well differentiated by
 - a. Mass Spectroscopy
 - b. IR Spectroscopy
 - c. Both A&B
 - d. UV Spectroscopy

- 4 Ions resulting from the decomposition between source region and the magnetic analyser in Mass spectroscopy are called
 - a. Stable ions
 - b. unstable ions
 - c. Metastable ions
 - d. None

- 5 Hydrogen bonding shifts the ultra violet absorptions to
 - a. Higher wavelength
 - b. Shorter wavelength
 - c. Both A&B
 - d. None

Vision – To emerge as a premier institute offering quality education in pharmaceutical sciences.

Mission – To create knowledgeable and ethical professionals capable of fulfilling the needs in health care systems.

- 6 What is the frequency of -C=N stretching.
- 3000cm⁻¹
 - 2650-2880 cm⁻¹
 - 2500-3000 cm⁻¹
 - 2210-2260 cm⁻¹
- 7 When a substance emit a visible light incident on it then the phenomenon is known as
- Fluorescence
 - Phosphorescence
 - both A&B
 - None
- 8 The physical reagent (flurotag) used in paper chromatography is
- AlCl₃
 - Dancyl chloride
 - Zinc silicate
 - Both A&C
- 9 Flurogenic material that is used in TLC is
- Kiesel gurh
 - silica gel
 - Cellulose
 - Zinc silicate
- 10 Different backbones that can be used in ion exchange chromatography are
- Cellulose
 - Dextrin
 - Polystyrene divinyl benzene
 - All
- 11 A proper solvent that is passed through the column for elution so that separated components can be collected is called _____
- Adsorbent
 - Buffer solution
 - Mobile phase
 - None of the mentioned

Vision – To emerge as a premier institute offering quality education in pharmaceutical sciences.

Mission – To create knowledgeable and ethical professionals capable of fulfilling the needs in health care systems.

- 12 Column chromatography is based on the principle of _____
- Exclusion principle
 - Differential adsorption
 - Absorption
 - Adsorption
- 13 The purity of the compound is confirmed by _____
- Its melting point and boiling point
 - Chromatographic technique
 - Spectroscopy
 - All of the mentioned
- 14 In UPLC, the stationary phase is.....
- Bridged ethylene hybrid
 - High strength silica
 - Charged surface hybrid
 - All of the above
- 15 For a nucleus with nuclear spin quantum number $I = \frac{1}{2}$, what are the values of m_I ?
- $+\frac{1}{2}, +1$
 - $0, +1$
 - $+\frac{1}{2}, 0$
 - $+\frac{1}{2}, -\frac{1}{2}$
- 16 Which of the following statements is wrong?
- UV absorption is attributable to electronic transitions.
 - UV spectra provide information about valence electrons.
 - IR absorption is attributable to transitions between rotational energy levels of whole molecules.
 - NMR spectrometers use radiofrequency electromagnetic radiation.
- 17 Which of the following statements regarding IR spectroscopy is wrong?
- Infrared radiation is higher in energy than UV radiation.
 - Infrared spectra record the transmission of IR radiation.
 - Molecular vibrations are due to periodic motions of atoms in molecules, and include bond stretching, torsional changes, and bond angle changes.
 - Infrared spectra give information about bonding features and functional groups in molecules.

Vision – To emerge as a premier institute offering quality education in pharmaceutical sciences.

Mission – To create knowledgeable and ethical professionals capable of fulfilling the needs in health care systems.

- 18 Which of the following statements regarding NMR spectroscopy is wrong?
- NMR signals towards the left of the spectral chart correspond to larger chemical shifts.
 - Chemical shifts are larger when the frequencies of the radiation which induces the nuclear transitions are higher.
 - Chemical shifts are larger when shielding effects are greater.
 - A hydrogen signal splits into $n+1$ peaks by spin-spin coupling when the number of equivalent hydrogen atoms on adjacent atom(s) is n , and no other neighbouring atoms are involved.
- 19 Which technique separates charged particles using electric field?
- Hydrolysis
 - Electrophoresis
 - Protein synthesis
 - Protein denaturing
- 20 The speed of migration of ions in electric field depends upon:
- Shape and size of molecule
 - Magnitude of charge and shape of molecule
 - Magnitude of charge shape and mass of molecule
 - Magnitude of charge and mass of molecule
- 21 Which of the following is not the characteristic of ion selective electrodes?
- Simple to use
 - Inexpensive
 - Narrow concentration range
 - Operates in wide range of temperature
- 22 The main advantage of fluorescence spectroscopy over UV spectroscopy is
- Its sensitivity
 - Its compatibility with the separation techniques
 - Its compatibility with most of the analytes
 - None of the above
- 23 In infrared spectroscopy which frequency range is known as the fingerprint region?
- $400 - 1400\text{cm}^{-1}$
 - $1400 - 900\text{cm}^{-1}$
 - $900 - 600\text{cm}^{-1}$
 - $600 - 250\text{cm}^{-1}$

Vision – To emerge as a premier institute offering quality education in pharmaceutical sciences.

Mission – To create knowledgeable and ethical professionals capable of fulfilling the needs in health care systems.

- 24 Which of the following techniques would be most useful to identify and quantify the presence of a known impurity in a drug substance?
- NMR
 - IR
 - MS
 - HPLC
- 25 Differential scanning calorimetry is a technique used to measure.....
- Electrical conductivity
 - Impact energy
 - Thermal expansion
 - Specific heat

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

ANSWERKEYS

QUESTION	CORRECT OPTION	QUESTION	CORRECT OPTION	QUESTION	CORRECT OPTION	QUESTION	CORRECT OPTION	QUESTION	CORRECT OPTION
1	c	6	d	11	b	16	c	21	c
2	b	7	c	12	b	17	a	22	a
3	d	8	b	13	d	18	c	23	b
4	c	9	a	14	d	19	b	24	d
5	b	10	d	15	d	20	b	25	d