

Multiple Choice Questions

1. In which chromatography stationary phase is more polar than mobile phase?

- A. Ion exchange chromatography
- B. Normal phase chromatography**
- C. Reversed chromatography
- D. Size exclusion chromatography

2. In which type of chromatography, the stationary phase is held in a narrow tube and the mobile phase is forced through it under pressure?

- A. Column chromatography**
- B. Planar chromatography
- C. Liquid chromatography
- D. Gas chromatography

3. Which of the following guidelines are applicable to Analytical Method validation

- A. ICH Q1
- B. ICH Q2**
- C. ICH Q3
- D. ICH Q4

4. In thin layer chromatography, the stationary phase is made of _____ and the mobile phase is made of _____

- A. Solid, liquid**
- B. Liquid, liquid
- C. Liquid, gas
- D. Solid, gas

5. Which of the following multicomponent analysis technique involves estimation of components that show change in spectra in different pH medium

- A. Simultaneous equation
- B. Derivative spectroscopy
- C. Q Absorbance ratio
- D. Difference spectroscopy**

Subject: Pharmaceutical Analysis-III
Semester: VII

Class: L. Y. B. Pharm
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6. In which of the following type of paper chromatography does the mobile phase move horizontally over a circular sheet of paper?

- A. Ascending paper chromatography
- B. Descending paper chromatography

C. Radial paper chromatography

- D. Ascending – descending chromatography

7. In size exclusion chromatography, solute molecules are separated based on _____

A. Molecular geometry and size

- B. Molecular composition

C. Molecular phase

- D. Molecular formula

8. Ion exchange chromatography is based on?

- A. Electrostatic attraction

B. Electrical mobility of ionic species

- C. Partition chromatography

- D. Adsorption chromatography

9. Which of the following is an example of bulk property or general detector in HPLC

- A. Fluorescence detector

B. Refractive index detector

- C. Electrochemical detector

- D. UV-Visible detector

10. Which of the following is used as a carrier gas in gas chromatography

- A. Carbon dioxide

- B. Oxygen

C. Helium

- D. Methane

11. ^1H nuclei located near electronegative atoms tend to be _____ relative to ^1H nuclei

- A. Shielded
- B. Deshielded**
- C. Resonanced
- D. Split

12. Signal splitting in NMR arises from?

- A. Shielding effect
- B. Spin-spin decoupling
- C. Spin-spin coupling**
- D. Deshielding effect

13. The base peak in mass spectrum is?

- A. The lowest mass peak
- B. The peak corresponding to the parent ion
- C. The highest mass peak
- D. The peak set to 100% relative intensity**

14. Which one of the following is necessary for mass spectrometry to occur?

- A. Loss of an electron**
- B. Change of alignment of a proton in a magnetic field
- C. A molecular vibration
- D. Excitation of an electron from the ground state to a higher energy state

15. Column efficiency is measured in terms of number of theoretical plates, which is:

- A. Inversely related to square root of height equivalent to theoretical plates
- B. Directly related to square root of height equivalent to theoretical plates
- C. Directly related to height equivalent to theoretical plates
- D. Inversely related to height equivalent to theoretical plates**

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16. In reverse phase HPLC, there is a

- A. Non-polar solvent/polar column
- B. Polar solvent/Non-polar column**
- C. Polar solvent/Polar column
- D. Non-polar solvent/Non-polar column

17. In a chromatographic separation, which of the following is most appropriate for the qualitative analysis of a substance?

- A. Taking factor
- B. Capacity factor
- C. Retention time**
- D. Resolution

18. The basis of the technique of chromatography for separating components of a mixture is?

- A. the differing movement of particles of different mass in an electrical field
- B. the interaction of the components with a stationary and a mobile phases**
- C. the absorption of infrared radiation by the components.
- D. the deflection of charged particles in a magnetic field.

19. HPLC is an abbreviation for?

- A. High Profit Liquid Chromatography
- B. High Pressure Liquid Chromatography**
- C. Higher Performance Low Chromatography
- D. Higher Profit Low Chromatography

20. The base value for the following compound is



- A. 214
- B. 253
- C. 217**
- D. 202

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21. In IR spectroscopy, the wavenumber for nitrile group is observed in the range of

- A. 3500-3300 cm^{-1}
- B. 2200-2100 cm^{-1}**
- C. 1740-1650 cm^{-1}
- D. 3000-2800 cm^{-1}

22. Which of the following techniques would be most useful to identify as well as quantify the presence of a known impurity in a drug substance?

- A. NMR
- B. MS
- C. IR
- D. HPLC**

23. The results for precision studies in Analytical Method Validation, are expressed in terms of?

- A. % Relative error
- B. Correlation coefficient
- C. % Relative standard deviation**
- D. Mean

24. Which of the following is used as a spraying reagent in paper chromatography?

- A. conc. HCl
- B. NaCl solution
- C. Ninhydrin solution**
- D. CuSO_4 solution

25. In mass spectrometry, fragmentation of ions is achieved through?

- A. Ionization**
- B. Splitting
- C. Solubilization
- D. Coupling