B.Pharm. CBCS Pattern Semester-VII

BP701T - Instrumental Methods of Analysis

P. Pages : 3 **GUG/W/23/14143**

Time : Three Hours * 7 7 2 6 * Max. Marks : 75

Notes : 1. All questions are compulsory.
2. Illustrate your answers wherever necessary with the help of neat sketches.

1. Multiple Choice Questions. **20x1 =20**

i) The effect which involves a increase in the intensity of absorption called as ------
a) Auxochrome b) Hyperchromic effect
c) Hypsochromic effect d) Hypochromic effect

ii) The n-electrons can undergo the following types of transitions.
a) $n-\sigma$ transitions b) $n-\sigma^*$ transitions
c) $n-\pi^*$ transitions d) Both b and c

iii) Fluorescence involves ------- transitions.
a) Singlet- singlet b) Singlet-Triplet
c) Triplet d Triplet-singlet

iv) In fluorimetry, the first monochromator is used to isolate -----
a) Emission wavelength b) Excitation wavelength
c) Both a and b d) None of these

v) There is a continuous change in the angle between two bonds in ----- vibrations.
a) Stretching b) Symmetric
c) Asymmetric d) Bending

vi) What is the composition of globar rod which is used as a source in mid IR region?
a) Silver carbide b) Silicon carbide
c) Silver chloride d) Silicon dioxide

vii) In AAS, which of the following is the generally used radiation source?
a) Tungsten lamp b) Xenon mercury arc lamp
c) Hollow cathode lamp d) Hydrogen discharge lamp

viii) The most widely used flame in atomic absorption is -------
a) Air-coal gas b) Air-propane
c) Air-acetylene d) Oxyacetylene

ix) The most important application of flame photometry is ------
a) Analysis of Na^+ and K^+ in biological fluids and tissue
b) Identification of function group
c) Structural elucidation of organic compounds
d) None of the above

x) Which of the fuels produce a temperature lower than 2100ºC if air is used as oxidants?

a) Propane b) Butane
c) Hydrogen d) All of the above

xi) Which of the following techniques are based on the scattering of radiation?

a) Nephelometry b) Turbidometry
c) Raman spectrometry d) All

xii) -------- accounts for blue colour of sky.

a) Transmission b) Absorption
c) Scattering d) All

xiii) The compounds or reagents which are used for the production of colour for colorless substances are called

a) Mobile phase b) Stationary phase
c) Developers d) None

xiv) By removing the liquids associated with layer completely, adsorbent layer is ----

a) Hydrated b) Dissolved
c) Vaporized d) Activated

xv) The efficiency of separation increases if the particle size is ------

a) Small b) Large
c) Coarse d) Amorphous

xvi) The area of spot size is determined by measurement with a

a) Polarimeter b) Planimeter
c) Conductometer d) All

xvii) The electrophoretic mobility is inversely proportional to the ------

a) Viscosity of medium b) Size of ion
c) Both a and b d) None

xviii) The mobile phase or carrier gas in GLC is usually

a) He or Nitrogen b) Oxygen
c) Argon d) None

xix) When less cross-linking agents is present, they are less rigid but swell -------

a) More b) Less
c) Not swell d) Negligible

xx) The cell extract containing the His-Tag fusion protein is purified using a column.

a) Ni^{2+} chelate b) Zn^{2+} chelate
c) Cu^{2+} chelate d) Ph^{2+} chelate

2. Solve **any two.** **10x2 =20**

a) Define electrophoresis and explain factors affecting electrophoretic mobility. Write a note on SDS-PAGE.

b) Write in detail about factors affecting and mechanism involved in ion exchange process. Give applications of ion exchange chromatography.

c) Define chromatography. Explain each step involved in the TLC.

3. Solve **any seven.** **5x7 =35**

a) Discuss in detail about Chromophore and auxochrome.

b) Describe various factors affecting fluorescence.

c) Explain in detail applications of Nepheloturbidometry.

d) Write a short note on interferences in flame photometry.

e) Explain factors affecting on vibrations present in polyatomic molecule.

f) Write a note on electronic transitions in UV spectroscopy.

g) Describe various detectors in GC.

h) Discuss applications of AAS.

i) Explain various pumps used in HPLC.

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