

B.Pharm. (CBCS Pattern) Semester - VII  
**BP701T - Instrumental Methods of Analysis**

P. Pages : 3

Time : Three Hours



**GUG/S/23/14143**

Max. Marks : 75

- Notes :
1. All questions are compulsory.
  2. Diagrams and Chemical equation should be given wherever necessary.
  3. Illustrate your answers wherever necessary with the help of neat sketches.

**1. Multiple Choice Questions**

**20**

- i) In case of particle geometry in both turbidimetric and nephelometric analysis the most critical factor is -----
  - a) Pressure
  - b) Temperature
  - c) Control of particle shape & size
  - d) Intensity of Light
- ii) Step that convert the analyte within the aerosol into free analyte atoms in the ground state is -----
  - a) Nebulization
  - b) Dissociation
  - c) Atomization
  - d) Derivatization
- iii) To get higher temperature in the burner, in flame photometer, the following combination is used -----
  - a) Hydrogen/Air
  - b) Hydrogen/Oxygen
  - c) Acetylene/Air
  - d) Acetylene/Oxygen
- iv) Acetylene-nitrous oxide flames produce temperature achieved of about -----
  - a) 2700°C
  - b) 2900°C
  - c) 4200°C
  - d) 4500°C
- v) In one of the types of bending vibrations, two atoms approach each other and it is called -----
  - a) Wagging
  - b) Twisting
  - c) Rocking
  - d) Scissoring
- vi) ----- is commonly used as a mulling agent.
  - a) Butane
  - b) Nujol
  - c) Hexane
  - d) Chloroform
- vii) For energy to be transferred from the light source to the molecule the frequency of vibration of each must -----
  - a) Transform
  - b) Coincide
  - c) Increase
  - d) Decrease
- viii) ----- is the general term applied to the absorption and emission of radiant energy?
  - a) Fluorescence
  - b) Phosphorescence
  - c) Luminescence
  - d) Radiation

- ix) In photovoltaic cell, which unit acts as an electrode?
- Selenium layer
  - Thin metallic layer
  - Plastic case
  - Glass
- x) Dispersing device is -----
- Slit
  - Filter
  - Cuvette
  - Prism
- xi) Immunoaffinity chromatography is used for the purification of -----
- Antibodies
  - Interferons
  - Lipoproteins
  - Carbohydrates
- xii) The eluting power is high for which solvent?
- Ethanol
  - Benzene
  - Acetone
  - Carbon tetrachloride
- xiii) ----- is a weak adsorbent
- Starch
  - Silica gel
  - Alumina
  - Fullers earth
- xiv) Which is the easy and conventional method to prepare TLC glass plate?
- Spraying
  - Spreading
  - Dipping
  - Pouring
- xv) Retention factor value ranges from -----
- 0 to 1
  - 0 to 2
  - +2 to -2
  - +1 to -1
- xvi) A universal spraying reagent in TLC for all organic compounds is -----
- Ninhydrin
  - 50%  $\text{H}_2\text{SO}_4$
  - Aniline Oxalate
  - Silver nitrate
- xvii) The main obstacle with every method of electrophoresis is -----
- Diffusion
  - Osmosis
  - Agglutination
  - Precipitation
- xviii) ----- detector is based on the alteration of thermal conductivity of the carrier gas.
- Katharometer
  - Flame ionization
  - Electron capture
  - Bolometer
- xix) The detector used in HPLC is ----- detector.
- Pyroelectric
  - Golay
  - U.V.
  - Thermistor
- xx) With cation exchange resin ----- exchange slower.
- $\text{M}^+$
  - $\text{M}^{2+}$
  - $\text{M}^{3+}$
  - $\text{M}^4$

2. Long answer questions **solve any two.** **20**

- i) Draw a well labeled diagram of single focusing UV -Visible spectrophotometer and write in short about components of it.
- ii) Write in short about modes of vibration, factor affecting vibration and sampling techniques in I.R.
- iii) Write instrumentation and application of Gas chromatography.

3. Short Answer questions solve **any seven.** **35**

- i) Write a note on burners use in flame photometry.
- ii) Write a note on factors affecting on fluorescence and phosphorescence.
- iii) Write applications of Nepheloturbidometry.
- iv) Note on development techniques used in chromatography.
- v) Write in short factor affecting on column efficiency.
- vi) Write detection and visualization technique use in TLC.
- vii) Write application of gel electrophoresis.
- viii) Give note on columns used in HPLC
- ix) Classify ion exchange resin with suitable example.

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