Faculty of Pharmacy
S. Sinha College Aurangabad
B. Pharm 4th Year
Online Examination 2020

Subject: Pharmaceutical Analysis III **Marks: 50** **Time: 1 hr**

1. What is the name of an instrument used to measure the absorbance of a coloured compound in solution?

a) Colourmeter b) Colorimeter c) Calorimeter d) Coulometer.

2. A shift to lower wavenumber for an absorption in a spectrum corresponds to

a) a shift to lower wavelength
b) a shift to higher energy
c) a loss of intensity
d) a shift to lower frequency

3. Which of the following statements is correct?

a) Infrared radiation has a shorter wavelength than visible light.
b) Infrared radiation has a lower wave number than visible light.
c) Microwave radiation possesses more energy than infrared radiation.
d) Ultraviolet radiation has a longer wavelength than infrared radiation.

4. According to the Beer-Lambert Law, on which of the following does absorbance not depend?

a) Extinction coefficient of the sample.
b) Solution concentration.
c) Colour of the solution.
d) Distance that the light has travelled through the sample.

5. Which of the following statements is false about single beam absorption instruments?
   a) Tungsten bulb is used as a source
   b) Beam splitter is used to get parallel beam
   c) Test tube is used as sample holder
   d) Photovoltaic cell as detector

6. Which of the following statement is false about double beam absorption instruments?
   a) It is similar to single beam instruments except two beams are present
   b) Tungsten bulb is used as a source
   c) Reference beam must have a higher intensity than sample beam
   d) Both the beams after they pass through respective samples are compared

7. Which of the following is not an application of colorimeter?
   a) Paints b) Inks c) Cosmetics d) Composition detection

8. In photometers, the readings of the specimen are initially obtained in the form of which of the following parameters?
   a) Transmittance b) Absorption c) Wavelengths d) Volume

9. Which of the following is the purpose of balance indicator in double beam photometer or colorimeter?
   a) Selects a particular wavelength
   b) Splits the wavelength selected into two equal beams
   c) Detects and indicates the amount of light falling on it
   d) Indicates the difference between the output of two photometers

10. Which of the following is the purpose of the beam splitter in double beam photometer or colorimeter?
    a) Splits beam into two equal intensity beams
    b) Splits beam in such a way that sample beam has higher intensity
    c) Splits beam in such a way that a reference beam has higher intensity
    d) Merge two equal intensity beams into single beam

11. Which of the following is a source used in spectroscopy?
    a) LASER b) Tube light c) Sodium vapour lamp d) Tungsten lamp

12. Beer Lambert's law gives the relation between which of the following?
    a) Reflected radiation and concentration
    b) Scattered radiation and concentration
    c) Energy absorption and concentration
    d) Energy absorption and reflected radiation

13. In which of the following ways, absorption is related to transmittance?
    a) Absorption is the logarithm of transmittance
    b) Absorption is the reciprocal of transmittance
    c) Absorption is the negative logarithm of transmittance
    d) Absorption is a multiple of transmittance

14. Which of the following is not a limitation of Beer Lambert's law, which gives the relation between absorption, thickness, and concentration?
    a) Concentration must be lower
    b) Radiation must have higher bandwidth
    c) Radiation source must be monochromatic
    d) Does not consider factors other than thickness and concentration that affect absorbance

15. Beer's law states that the intensity of light decreases with respect to
    a) Concentration b) Distance c) Composition d) Volume

16. Lambert's law states that the intensity of light decreases with respect to
    a) Concentration b) Distance c) Composition d) Volume
17. Which of the following is not true about Absorption spectroscopy?
    a) It involves transmission
    b) Scattering is kept minimum

c) Reflection is kept maximum
d) Intensity of radiation leaving the substance is an indication of concentration

18. What is the unit of absorbance which can be derived from Beer Lambert's law?
a) L mol-1 cm-1 b) L gm-1 cm-1 c) Cm d) No unit

19. What is the unit of molar absorptivity or absorptivity which is used to determine absorbance A in Beer Lambert's formula?
a) L mol-1 cm-1 b) L gm-1 cm-1 c) Cm d) No unit

20. Transmittance is given as T = P/Po. If Po is the power incident on the sample, what does P represent?
a) Radiant power transmitted by the sample
b) Radiant power absorbed by the sample
c) Sum of powers absorbed and scattered
d) Sum of powers transmitted and reflected

21. What is principal of Nephelometry?
a) Light scattered b) Light transmitted c) a and b d) None of the above

22. What is principal of Turbidimetry?
a) Light scattered b) Light transmitted
c) a and b d) None of the above

23. Which technique is used to analyze colloidal system?
a) Nephelometry b) Turbidimetry c) a and b d) None of the above

24. The intensity of the scattered light is usually measure at which angle?
a) 90° b) 44° c) 60° d) 70°

25. The intensity of the transmitted light is usually measure at which angle?
a) 80° b) 180° c) 90° d) 100°

26. Which sentence is false about Nephelometry?
a) Nephelometry is concerned with the measure of the intensity of the transmitted light as a function of concentration of the suspended particle in a suspension.
b) Intensity of scattered light is directly proportional to the concentration of the suspended particle.
c) Hence greater concentration of particle more the intensity of light
d) The intensity of the scattered light is usually measure at 90° to the incident light.

27. Which sentence is false about Turbidimetry?
a) Turbidimetry is concerned with the measure of the intensity of the transmitted light as a function of concentration of the suspended particle in a suspension.
b) The intensity of transmitted light is measured in a line i.e 180° to the incident light.
c) Hence concentration is more transmission is less.
d) Hence greater concentration of particle more the intensity of light.

28. Which detector are used in Fluorimetry?
a) Photo voltaic cell b) PMT c) Photo tube d) All of the above

29. Which are the varient of Fluorimetry instrument?
a) Single beam b) Double beam c) Spectroflourimeter d) All of the above

30. Which of the following are used as sources in fluorometry?
a) Incandescent wire and Xenon arc lamp
b) Deuterium discharge lamp and Mercury vapor lamp
c) Deuterium discharge lamp and Incandescent wire
d) Xenon arc lamp and Mercury vapor lamp

31. The purpose of secondary filter in fluorescence spectroscopy is
a) Allows only excitation radiation
b) Allows only emission radiation
c) Allows both excitation and emission radiations
d) Allows transmitted radiation

32. Which of the following increase the fluorescence of aromatic compounds?
a) Para substitution b) Ortho c) Meta d) All of the above

33. The main advantage of fluorescence over UV-Vis spectroscopy is
a) Its sensitivity b) Its compatibility with separation techniques
c) Its compatibility with most analytes d) None of the above

34. Select the true statement about fluorescence spectroscopy of molecules in the UV-visible region
a) Emission usually occurs at energies that are greater than the energies of excitation
b) Emission usually occurs at energies that are less than the energies of excitation
c) Emission usually occurs at energies that are equal to the energies of excitation.
d) None of the above is accurate

35. Accuracy is defined as
a) The closeness of a measured value to the real value.
b) A measure of how often an experimental value can be repeated.
c) The number of significant figures used in a measurement.
d) None of these.

36. If the absorption of electromagnetic radiation by matter results in the emission of radiation of the same or longer wavelengths for a long or a short time, the phenomenon is termed as which of the following?
a) Luminescence b) Fluorescence c) Phosphorescence d) Spontaneous emission

37. If the absorption of electromagnetic radiation by matter results in the emission of radiation of the same or longer wavelengths for a short time, the phenomenon is termed as which of the following?
a) Luminescence b) Fluorescence c) Phosphorescence d) Spontaneous emission

38. In X-ray fluorescence spectrometer, the relationship between the excitation intensity and the intensity of fluorescence does not depend on which of the following?
a) Spectrum of the incident radiation b) Angle of radiance
c) Molecular weight d) Incident angle

39. Which of the following is the principle of Flame emission photometers?
a) Radiation is absorbed by non-excited atoms in vapour state and are excited to higher states
b) Medium absorbs radiation and transmitted radiation is measured
c) Colour and wavelength of the flame is measured
d) Only wavelength of the flame is measured

40. In Flame emission photometers, the measurement of _____is used for qualitative analysis.
a) Colour b) Intensity c) Velocity d) Frequency

41. In Flame emission photometers, the measurement of _____is used for quantitative analysis.
a) Colour b) Intensity c) Velocity d) Frequency

42. Which of the following is the advantage of prism monochromators?
a) Dispersion is non-overlapping
b) Dispersion occurs in non-linear manner
c) Dispersion is overlapping
d) Dispersion occurs in a linear manner

43. Which of the following is not a fuel used in flame photometry?
a) Acetylene b) Propane c) Hydrogen d) Camphor oil

44. Basically a potentiometer is a device for
a) Comparing two voltages b) Measuring a current
c) Comparing two currents d) Measuring a voltage

45. In order to achieve high accuracy, the slide wire of a potentiometer should be
a) As long as possible b) As short as possible
c) Neither too small not too large d) Very thick

46. The resolution of potentiometer shall be
a) Zero b) very small c) Very large d) Proportional to its reference voltage

47. 1. Which of the following is the formula for pH calculation?
a) log10[H+] b) -log10[H+] c) log2[H+] d) -log2[H+]

48. Which of the following is the relation between the concentration of hydrogen and hydroxyl ions in an acidic solution?
a) Value of hydrogen ion concentration is greater
b) Value of hydroxyl ion concentration is greater
c) They are both always the same
d) The concentrations keep changing

49. Which of the following is the value of hydroxyl ion concentration of pure water?
a) 1×107 moles/litre
b) 1×105 moles/litre
c) 1×106 moles/litre
d) 1×108 moles/litre

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