

Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021)

Course Name - Bio Analytical Tools

Course Code - BBT601

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Answer all the questions. Each question carry one mark.

9. 1. Which part of the compound microscope helps in gathering and focusing light rays on the specimen to be viewed?

Mark only one oval.

- Eyepiece lens
- Objective lens
- Condenser lens
- Magnifying lens

10. 2. What is the minimum distance for the eye to focus any object?

Mark only one oval.

11 cm

25 cm

45cm

15 cm

11. 3. Resolving power of a microscope is a function of _____

Mark only one oval.

Wavelength of light used

Numerical aperture of lens system

Refractive index

Wavelength of light used and numerical aperture of lens system

12. 4. Total Magnification is obtained by

Mark only one oval.

Magnifying power of the objective lens

Magnifying power of eyepiece

Magnifying power of condenser lens

Magnifying power of both the objective lens and eyepiece

13. 5. In Phase contrast microscopy, the rate at which light enters through objects is

Mark only one oval.

- Constant
- Inversely proportional to their refractive indices
- Directly proportional to their refractive indices
- Exponentially related to their refractive indices

14. 6. Which of the following are true for electron microscopy?

Mark only one oval.

- specimen should be thin and dry
- image is obtained on a phosphorescent screen
- electron beam must pass through evacuated chamber
- specimen should be thin and dry, image is obtained on a phosphorescent screen and electron beam must pass through evacuated chamber

15. 7. Degree of scattering in transmission electron microscope is a function of

Mark only one oval.

- wavelength of electron beam used
- number of atoms that lie in the electron path
- number and mass of atoms that lie in the electron path
- mass of atoms that lie in the electron path

16. 8. Negative Staining is used for examining

Mark only one oval.

- virus particles
- protein molecules
- bacterial flagella
- virus particles, protein molecules and bacterial flagella

17. 9. The secondary electrons radiated back in scanning microscope is collected by?

Mark only one oval.

- specimen
- anode
- vacuum chamber
- cathode

18. 10. On what factors do the intensity of secondary electrons depend upon?

Mark only one oval.

- shape of the irradiated object
- chemical composition of the irradiated object
- number of electrons ejected
- size and chemical composition of the irradiated object, number of electrons ejected and on the number of electrons reabsorbed by surrounding

19. 11. Where do we obtain the magnified image of the specimen in SEM?

Mark only one oval.

- cathode ray tube
- phosphorescent screen
- anode
- scanning generator

20. 12. Which of the following is not a failure in pH meters?

Mark only one oval.

- Defective electrodes
- Defective input circuitry
- Defective electronic circuitry
- Defective calibration

21. 13. Which of the following is the simplest of pH meters?

Mark only one oval.

- Null-detector type pH meter
- Direct reading type pH meter
- Digital pH meter
- Modern pH meter

22. 14. Which of the following is not the characteristic of null-detector type pH meter?

Mark only one oval.

- It can be battery operated
- It has less accuracy
- It is easy to maintain
- Its electronic circuits are simple

23. 15. Which of the following is not the characteristic of direct reading type pH meters?

Mark only one oval.

- Simple operation
- Quick to use
- Continuous indication output
- It requires balancing process

24. 16. Which of the following is not a component of the emission system in Flame photometer?

Mark only one oval.

- Burner
- Atomiser
- Fuel gases and their regulation
- Chopper

25. 17. Which of the following is the function of the atomiser in the emission system of Atomic Absorption Spectroscopy?

Mark only one oval.

- To split the beam into two
- To break the steady light into pulsating light
- To break large mass of liquid into small drops
- To reduce the sample into atomic state

26. 18. Which of the following is not a fuel used in flame photometry?

Mark only one oval.

- Acetylene
- Propane
- Hydrogen
- Camphor oil

27. 19. Which spectroscopy is measure intensity of the FLUORESCENCE of molecule?

Mark only one oval.

- IR
- NMR
- Flurometry
- All of the above

28. 20. When molecule are goes to excited state to ground state it is emitted radiation that wave length ?

Mark only one oval.

- Shorter than absorbed radiation
- Longer than absorbed radiation
- 1 and 2
- None of the

29. 21. Which of the following statements is false about single beam absorption instruments?

Mark only one oval.

- Tungsten bulb is used as a source
- Beam splitter is used to get parallel beam
- Test tube is used as sample holder
- Photovoltaic cell as detector

30. 22. Which of the following statement is false about double beam absorption instruments?

Mark only one oval.

- It is similar to single beam instruments except two beams are present
- Tungsten bulb is used as a source
- Reference beam must have a higher intensity than sample beam
- Both the beams after they pass through respective samples are compared

31. 23. Which of the following is the purpose of balance indicator in double beam photometer or colorimeter?

Mark only one oval.

- Selects a particular wavelength
- Splits the wavelength selected into two equal beams
- Detects and indicates the amount of light falling on it
- Indicates the difference between the output of two photometers

32. 24. Which of the following is the purpose of the beam splitter in double beam photometer or colorimeter?

Mark only one oval.

- Splits beam into two equal intensity beams
- Splits beam in such a way that sample beam has higher intensity
- Splits beam in such a way that a reference beam has higher intensity
- Merge two equal intensity beams into single beam

33. 25. Which of the following is a source used in spectroscopy?

Mark only one oval.

- LASER
- Tube light
- Sodium vapour lamp
- Tungsten lamp

34. 26. What is the wavelength range for UV spectrum of light?

Mark only one oval.

- 400 nm – 700 nm
- 700 nm to 1 mm
- 0.01 nm to 10 nm
- 10 nm to 400 nm

35. 27. Which of the following is not a type of Spectroscopy?

Mark only one oval.

- Gamma ray
- X ray
- Nuclear magnetic resonance
- Sound

36. 28. Which of the following is false about the wavelengths of electromagnetic radiation?

Mark only one oval.

- Radiation with short wavelengths have high energies
- Energy does not depend on wavelength
- Radiation with long wavelengths have low energies
- Energy depends on wavelength

37. 29. Which of the following centrifugation is used to separate certain organelles from whole cell?

Mark only one oval.

- Rate-zonal centrifugation
- Normal centrifugation
- Differential centrifugation
- Isopycnic centrifugation

38. 30. Which of the following is used as a media for density gradient?

Mark only one oval.

- Agarose
- Ficoll
- Luria broth
- Propylene glycol

39. 31. From the following which is the type of filtration centrifuge?

Mark only one oval.

- Screen/scroll centrifuge
- Tubular centrifuge
- Decanter centrifuge
- Separator centrifuge

40. 32. When was the technique of two-dimensional gel electrophoresis developed?

Mark only one oval.

1955

1965

1975

1985

41. 33. Which of the following amino acid absorbs the light of 280 nm?

Mark only one oval.

tyrosine

cysteine

leucine

valine

42. 34. In mass-spectrometry, proteins are separated base on their

Mark only one oval.

i-value

c-value

m/z ratio

e/m ratio

43. 35. In X-ray diffraction, the protein crystals are bombarded with ____

Mark only one oval.

- UV rays
- X rays
- Gamma rays
- Infrared rays

44. 36. Which was the first protein to have its structure determined using X-ray crystallography?

Mark only one oval.

- keratin
- myoglobin
- immunoglobulin
- globulin

45. 37. Synchrotrons generate _

Mark only one oval.

- Peptides
- X rays
- Infrared rays
- Carcinogens

46. 38. Purification of a protein can be measured as an increase in ____

Mark only one oval.

- temperature
- pH value
- specific activity
- polarity

47. 39. In the liquid column chromatography, there are two phases namely _____ and _____

Mark only one oval.

- mobile, immobile
- liquid, gel
- viscous, non-viscous
- flammable, inflammable

48. 40. Which of the following uses non-compressible matrix and high pressure?

Mark only one oval.

- HPLC
- GC-MS
- LC-MS
- MS-MS

49. 41. When the pH of a protein is lowered _____

Mark only one oval.

- temperature decreases
- negatively-charged groups neutralize
- positively-charged groups neutralize
- positively-charged groups decrease

50. 42. Which of the following is used as an ion-exchanger resin?

Mark only one oval.

- ethanol
- cellulose
- starch
- collagen

51. 43. In ion-exchange chromatography, proteins bound to the resin can be displaced by increasing the _____

Mark only one oval.

- strength of ionic buffer
- size of sample
- column volume
- column width

52. 44. Gel-filtration chromatography separates proteins based on their _____

Mark only one oval.

- pH
- temperature
- morphology
- effective size

53. 45. Polyacrylamide gel electrophoresis uses _____ to separate proteins.

Mark only one oval.

- pressure difference
- temperature difference
- electric field
- magnetic field

54. 46. Which of the following cell organelles does not contain DNA?

Mark only one oval.

- Nucleus
- Lysosomes
- Chloroplast
- Mitochondria

55. 47. Which of the following cell organelles regulates the entry and exit of molecules to and from the cell?

Mark only one oval.

- Lysosomes
 Golgi bodies
 Cell membrane
 Mitochondria

56. 48. Which of the following cell organelles is called a suicidal bag?

Mark only one oval.

- Lysosomes
 Golgi bodies
 Cell membrane
 Mitochondria

57. 49. Chromatography is a physical method that is used to separate and analyse _____

Mark only one oval.

- Simple mixtures
 Complex mixtures
 Viscous mixtures
 Metals

58. 50. In chromatography, which of the following can the mobile phase be made of?

Mark only one oval.

- Solid or liquid
- Liquid or gas
- Gas only
- Liquid only

59. 51. Which of the following cannot be used as an adsorbent in Column adsorption chromatography?

Mark only one oval.

- Magnesium oxide
- Silica gel
- Activated alumina
- Potassium permanganate

60. 52. Which of the following types of chromatography involves the separation of substances in a mixture over a 0.2mm thick layer of an adsorbent?

Mark only one oval.

- Gas liquid
- Column
- Thin layer
- Paper

61. 53. In Thin layer chromatography, the stationary phase is made of _____ and the mobile phase is made of _____

Mark only one oval.

- Solid, liquid
- Liquid, liquid
- Liquid, gas
- Solid, gas

62. 54. In which of the following type of paper, chromatography does the mobile phase move horizontally over a circular sheet of paper?

Mark only one oval.

- Ascending paper chromatography
- Descending paper chromatography
- Radial paper chromatography
- Ascending – descending chromatography

63. 55. Which of the following types of chromatography involves the process, where the mobile phase moves through the stationary phase by the influence of gravity or capillary action?

Mark only one oval.

- Column Chromatography
- High Pressure Liquid Chromatography
- Gas Chromatography
- Planar Chromatography

64. 56. Which force is responsible for the separation of the components in descending paper chromatography?

Mark only one oval.

- Partition
- Adsorption
- Gravity
- All of the above

65. 57. Which is not development technique of paper Chromatography ?

Mark only one oval.

- Two dimensional
- Ascending
- Descending
- HPLC

66. 58. Rf value is

Mark only one oval.

- Distance travelled by the compound at it's point of maximum.
- Distance travelled by the standard.
- Solvent travelled
- None of the above

67. 59. The Affinity chromatography deals with the

Mark only one oval.

- specific binding of a protein constituents for another molecule
- protein - protein interaction
- protein - carbohydrate interaction
- None of these

68. 60. A purified protein sample contains 10 μg of protein and has an enzyme activity of 1 m mole of ATP synthesized/sec (1 unit). What is the specific activity of the final purified sample?

Mark only one oval.

- 1,000 units/mg
- 10,000 units/mg.
- 100,000 units/mg
- 1,000,000 units/mg

69. 61. The best way to determine the location of protein in the purification scheme is to measure the

Mark only one oval.

- rate of ATP synthesis
- UV absorption
- changes in the refractive index
- mass spectroscopy of the protein

70. 62. In antibiotic manufacturing processes, the fermentation time ranges from

Mark only one oval.

- 2-3 weeks
- 1-2 weeks
- 4-5 weeks
- 2-4 weeks

71. 63. The effectiveness of a solvent can be measured by the

Mark only one oval.

- distribution coefficients
- selectivity
- both (a) and (b)
- diffusivity

72. 64. The stage wise operation of adsorption is called

Mark only one oval.

- contact filtration
- conventional adsorption
- affinity adsorption
- ion exchange

73. 65. Which of the following is not the physical method for the cells rupturing?

Mark only one oval.

- Milling
- Homogenization
- Ultrasonication
- Enzymatic digestion

74. 66. Conventional adsorption is

Mark only one oval.

- reversible process
- irreversible process
- either reversible or irreversible
- none of these

75. 67. Concentration polarization can be reduced further by

Mark only one oval.

- pre-filtering the solution
- reducing the flow rate per unit membrane surface area
- back washing periodically
- All of these

76. 68. When the velocity of enzyme activity is plotted against substrate concentration, which of the following is obtained?

Mark only one oval.

- Hyperbolic curve
- Parabola
- Straight line with positive slope
- Straight line with negative slope

77. 69. The rate determining step of Michaelis-Menten kinetics is

Mark only one oval.

- The complex dissociation step to produce products
- The complex formation step
- The product formation step
- None of these

78. 70. The speed of migration of ions in electric field depends upon:

Mark only one oval.

- 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

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