BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Bachelor of Science in Medical Lab Technology
Course Name – Special Techniques in Laboratory Science
Course Code - BMLT603
(Semester VI)

Time : 1 Hr.15 Min. **Full Marks : 60**

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question) 1 x 60=60

Choose the correct alternative from the following :

(1) Which technique is also known as colour writing ?
a) NMR
b) Mass spectroscopy
c) Chromatography
d) All of the above

(2) Which of the following HPLC detectors is used as a bulk property or general purpose detector?
a) Electrochemical detector
b) Fluorescence detector
c) UV-Visible detector
d) Evaporative Light scattering detector

(3) Thin layer chromatography is_____
a) Partition chromatography
b) Electrical mobility of ionic species
c) Adsorption chromatography
d) None of the above

(4) Which of the following is used as a spraying reagent in paper chromatography?
a) conc. HCl
b) NaCl solution
c) Ninhydrin solution
d) CuSO4 solution

(5) In gas chromatography, the basis for separation of the components of the volatile material is the difference in_____
a) Partition coefficients
b) Conductivity
c) Molecular weight
d) Molarity

(6) In chromatography, the stationary phase can be _____ supported on a solid.
a) Solid or liquid
b) Liquid or gas
c) Solid only
d) Liquid only

(7) What is Eluent ?
a) It is a liquid solution
b) is a liquid solution that is a result from Elution.
c) It is a solvent that used for separation of abs
d) None of these

orbed material from stationary phase.

(8) In chromatography, which of the following can the mobile phase be made of?

a) Solid or liquid
b) Liquid or gas
c) Gas only
d) Liquid only

(9) Chromatogram is_____

a) Solute concentration vs Elution time
b) Solute concentration vs Elution volume
c) A and B
d) None of the above

(10) What is the Analyte ?

a) Substance for separation
b) Substance for impurity
c) A and B
d) None of the above

(11) In size exclusion chromatography, solute molecules are separated based on _____

a) Molecular geometry and size
b) Molecular composition
c) Molecular phase
d) Molecular formula

(12) 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

(13) Liquid chromatography can be performed in which of the following ways?

a) Only in columns
b) Only on plane surfaces
c) Either in columns or on plane surfaces
d) Neither in columns nor on plane surfaces

(14) The process of passing a mobile phase through a chromatography column is called whi ch one of the following?

a) Flushing
b) Washing
c) Elution
d) Partitioning

(15) Which technique is not used to separate nucleic acids of size greater than 25 kb?

a) SDS-PAGE
b) Pulsed-field electrophoresis
c) 2D- gel electrophoresis
d) None of these

(16) Which type of gel is used for large nucleic acids?

a) acrylamide
b) cellulose
c) agarose
d) sephadex

(17) Which of the following is a primary factor that dictates how far a protein will migrate d uring SDS-PAGE?

a) Degree of tertiary structure
b) Degree of secondary structure
c) Size
d) Number of subunits

(18) Which of the following is true about SDS-PAGE?

a) Staining with ethidium bromide allows visua lization of results
b) It separates proteins by charge
c) The main ingredient in the gel is agarose
d) It requires a protein-denaturing gel

(19) Which of the following techniques would be most useful to study gene expression?

a) Western blot
b) Eastern blot
c) Northern blot
d) Southern blot

(20) Which spectroscopy is working on principal of the emissions radiation ?

a) Flame photometry
b) Mass spectroscopy.
c) uv spectroscopy
d) All of these

(21) The most abundant immunoglobulin class in serum is

a) IgG
b) IgE
c) IgM
d) None of these

(22) Anigen is sandwitched within two antibodies in
a) Indirect ELISA
b) Sandwitch ELISA
c) Direct ELISA
d) Competitive ELISA

(23) In ELISA, Horseradish Peroxidase(HRP) is:
a) Antigen
b) Antibody
c) Chromogen
d) Enzyme

(24) What is the first stage of the two-stage two-dimensional PAGE?
a) SDS-PAGE
b) HPLC
c) Isoelectric focusing
d) Sedimentation

(25) Which of the following types of spectroscopy can tell us the most about the carbon fra mework of an organic compound?
a) UV-visible spectroscopy
b) Infra-red spectroscopy
c) NMR spectroscopy
d) Mass spectrometry

(26) In flow cytometry which of the combination is impossible?
a) Both the labeled antigens in same particle
b) None of the labeled antigens on a particle
c) One of the labeled antigen
d) All can be true

(27) In a flow cytometer you will see the cells lacking both the labels in _____ qua drant.
a) 1st
b) 2nd
c) 3rd
d) 4th

(28) Which of the following drugs effect caspases?
a) Oblimerson
b) Pikan083
c) Tenovin
d) Apoptin

(29) Tandem dyes are
a) highly stable fluorophores after fixation
b) can dissociate due to heat, light or chemical t reatment
c) two covalently-linked fluorophores
d) all of these

(30) FACS can be done based on
a) Phenotype
b) genotype
c) size
d) molecular wt

(31) There are two types of scattering in FACS
a) Forward scattering
b) side scatter
c) Backward scatter
d) Both and b

(32) he identity and chemical properties of an atom are determined by _____
a) critical temperature
b) critical freezing point
c) melting temperature
d) number of protons

(33) Which of the following is radioactive?
a) hydrogen sulfide
b) vimentin
c) tritium
d) deuterium

(34) The half life of a radioisotope is _____
a) half the time taken for complete decay
b) half the time taken for half the decay
c) time taken for complete decay
d) time taken for half the decay

(35) Which of the following emitted particles consists of two protons?

a) alpha
b) beta
c) gamma
d) zeta

(36) Liquid scintillation spectrometry is a method of detecting _____

a) X-rays
b) α-emitters
c) β-emitters
d) Gamma-rays

(37) Which of the following isotopes is not a radioisotope?

a) Carbon-13
b) Carbon-14
c) Tritium
d) Sulphur-35

(38) Which of the following statements best describes radiodilution analysis?

a) A method of determining the ratio of unlabelled compound to labelled compound in a sample
b) A method of determining how much the radioactivity of a sample has decreased with time
c) A method of how the level of a biosynthetic intermdiate within a microbial cell
d) A method of determining radiochemical purity

(39) Which pair of isotopes are likely to result in the greatest isotope effect?

a) Nitrogen-14 and nitrogen-15
b) Carbon-12 and carbon-14
c) Carbon-12 and carbon-13
d) Hydrogen and deuterium

(40) Which of the following detection methods is not commonly used to detect isotopically labelled drug metabolites?

a) Infra red spectroscopy
b) Nuclear magnetic resonance spectroscopy
c) Scintillation counting (detection of radioactivity)
d) Mass spectrometry

(41) What is detected during positron emission tomography (PET)?

a) Positrons
b) Electrons
c) Neutrons
d) Photons

(42) When two atomic nuclei combine it is called as

a) Chain reaction
b) Nuclear fusion
c) Nuclear decay
d) Nuclear fission

(43) A nuclide of the element plutonium 94 Pu 242. What is the number of neutrons in its nucleus?

a) 242
b) 336
c) 148
d) 94

(44) The age of fossil when C-14: C-12 in bone is one fourth of ratio in bone of living animal and half-life of C-14 is 5732 years is

a) 100 years
b) 11460 years
c) 1000 years
d) 1200 years

(45) Nuclei bombarded with protons, neutron or alpha particles are changed to

a) isotopes
b) radioisotopes
c) element having atomic number less than 82
d) none of above

(46) Soudium 24 is used clinically to examine

a) blood circulation
b) lung function
c) lipid profile
d) kidney function

(47) Rubidium 82 is used in typically as

a) convenient PET agent for myaocardial perfu
b) diagnosis of coronary artery diseases

sion

c) glucose monitoring

d) All of these

(48) I-111 is typically used for

a) brain studies

b) infections studies

c) colon transit studies

d) All of these

(49) Iron 59 is generally used for

a) diagnosis of anaemia

b) Pregnancy disorder

c) both a and b

d) colorectal cancer

(50) rem refers to

a) biological damage measurement caused by r adiation

b) water content measurement in human

c) Electrolyte measuement in body

d) None of these

(51) Radiation absorbed by the tissue is measured by

a) Curie

b) rem

c) rad

d) Pascle

(52) Which one of the following used widely in nuclear medicine

a) C14

b) Co60

c) Tc-99m

d) Ga-67

(53) Chronic Leukemia is treated by

a) 137Cs

b) 131Cs

c) 67Ga

d) 60CO

(54) The most common triad of radiation protection is

a) Time

b) distance

c) Shield

d) All of these

(55) Which of the following is not an advantage of Syringe type pumps used in High pressu re liquid chromatography?

a) Independent of viscosity

b) Pulse-less flow

c) High pressure capability

d) Unlimited solvent capacity

(56) Which of the following is not true about solvent programming which is done in high pe rformance liquid chromatography?

a) It provides unequal bandwidths

b) It provides fast overall separation

c) It provides maximum resolution

d) It provides maximum sensitivity

(57) Which of the following pulse damper takes up some amount of the pulsation energy w hich is released to provide smooth pressure without pulsations?

a) Flexible bellows or compressible gas passed through tee column

b) Flexible inert diaphragm

c) Electronic pulse damper

d) Electrical pulse damper

(58) Syringe pumps used in High pressure liquid chromatography are most suitable for whic h of the following columns?

a) Capillary columns

b) Guard columns

c) Short-fast columns

d) Small bore columns

(59) Which of the following is not true about Hydraulic capacitance flow control system use d in HPLC

a) It can be used only for liquids with low visco sity

b) It is irrespective of solvent compressibility

c) It maintains a constant flow

d) It smoothens high pressure pump pulsations

(60) The antibody class found at highest concentrations in serum is

a) IgE
b) IgG
c) IgD
d) IgM