

BRAINWARE UNIVERSITY

Term End Examination 2021 - 22 Programme – Bachelor of Science (Honours) in Biotechnology Course Name – Basic Laboratory Sciences and Clinical Techniques Course Code - GEAHS401 (Semester IV)

Гіme allotted : 1 Hrs.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) In light microscopy, which of the following is use e?	ed as fixatives prior to staining techniqu
a) Osmic acid	b) Glutaraldehyde
c) Heat	d) Osmic acid, glutaraldehyde, heat
(2) In Phase contrast microscopy, the rate at which list	
a) Constant	b) Inversely proportional to their refractive indic es
c) Directly proportional to their refractive indices	d) Exponentially related to their refractive indic es
(3) Which part of the compound microscope helps in specimen to be viewed?	gathering and focusing light rays on the
a) Eyepiece lens	b) Objective lens
c) Condenser lens	d) Magnifying lens
(4) Resolving power of a microscope is a function of	
a) Wavelength of light used	b) Numerical aperture of lens system
c) Refractive index	d) Wavelength of light used and numerical apert ure of lens system
(5) The greatest resolution in light microscopy can be	e obtained with
a) Longest wavelength of visible light used	b) An objective with minimum numerical apertu re

c) Shortest wavelength of visible light used	d) Shortest wavelength of visible light used and an objective with the maximum numerical aperture
(6) Which of the microscopes below is usually good	for use on unstained specimens?
a) Phase-contrast	b) fluorescence
c) bright-field	d) transmission electron microscopy
(7) Which of the microscopes below form images in	visible light?
a) bright-field	b) dark field
c) fluorescence	d) both b and c
(8) Scanning electron microscopy is most often used	to reveal
a) surface morphology	b) internal structures
c) both surface and internal structures simultaneo usly	d) either surface or internal structures, but not si multaneously
(9) The resolving power of unaided human eye is	
a) 1 cm	b) 100 um
c) 200nm	d) 400nm
(10) Which of the following is used in electron micros	cope?
a) electron beams	b) magnetic fields
c) light waves	d) electron beams and magnetic fields
(11) Which of the following are true for electron micro	oscopy?
 a) specimen should be thin and dry, image is obta ined on a phosphorescent screen and electron beam must pass through evacuated chamber 	b) electron beam must pass through evacuated ch amber
c) image is obtained on a phosphorescent screen	d) specimen should be thin and dry
(12) Which of the following light is suitable for maxin	num resolution
a) Red	b) blue
c) green	d) orange
(13) What mordant is used in Gram staining?	
a) crystal violet	b) safranin
c) acid-alcohol	d) iodine
(14) Who is the probable inventor of the compound m	icroscope?
a) Girolamo Fracastoro	b) Zaccharias Janssen
c) Antonie van Leeuwenhoek	d) Robert Hooke
(15) Photobleaching refers to	
a) Oxidative damage of visualized cell	b) heatig the sample
c) Overlaping of the planes	d) All of these
(16) In fluroscence, mitochondria stained through Mito	o-tracker appears
a) Red	b) Green
c) blue	d) purple
(17) In fluroscence, actin cytoskeleton stained through	phalloidin derivatives appears
a) purple	b) Green

c) blue	a) pink
(18) . Which of the following was banned und ndment of 1958	der the Delaney clause of the Food Additive Ame
a) sulfamethazine	b) cyclamate
c) phytoestrogens	d) aflatoxin
(19) The example of local posining is	
a) Oxalic acid	b) Sulphuric acid
c) Chromic acid	d) None of these
(20) The major treatment of Lead poisoining	
a) Chronotherapy	b) Chelation Therapy
c) Lead replacement	d) Chemotherapy
(21) Chronic poisoining involves	
a) Targeted organ failure	b) Multi-organ failure
c) blood loss	d) Numbness
(22) The compound used for Chelation Thera	py
a) Heparin	b) Tetracycline
c) EDTA	d) All of these
(23) Which of the following is used to lyse th	e nucleus and release the DNA?
a) sodium dodecyl sulfate	b) ammonium sulfate
c) ferric phosphate	d) fluorine
(24) The procedure by which DNA gel is tran	asferred to a membrane is termed as
a) blotting	b) centifugation
c) electrophoresis	d) paper chromatography
(25) Nucleic acid hybridization is used to idea	ntify
a) RNAs	b) DNAs
c) Complementary base sequences	d) Proteins
(26) Which of the following molecules can be	e analyzed using a northern blot?
a) RNA	b) Carbohydrates
c) Proteins	d) DNA
(27) 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
(28) Which of the following is a primary factor ng SDS-PAGE?	or that dictates how far a protein will migrate duri
a) Degree of tertiary structure	b) Degree of secondary structure
c) Size	d) Number of subunits
(29) Which of the following techniques would	d be most useful to study gene expression?
a) Western blot	b) Eastern blot
c) Northern blot	d) Southern blot

(30) If wave length is 10 nm. So what is the frequency	y ?
a) 0.3	b) 0.5
c) 1.2	d) 0.8
(31) Which spectroscopy is working on the principle of	of magnetic level?
a) FTIR	b) IR
c) NMR	d) UV
(32) What is wave length of the vaccum uv?	
a) 10 – 500 nm	b) 10 – 100 nm
c) 10 – 200 nm	d) 10 – 1000 nm
(33) The different types of energies associated with a	molecule are
a) Electronic energy	b) Vibrational energy
c) Rotational energy	d) All of the mentioned
(34) During the motion, if the centre of gravity of mol	ecule changes, the molecule possess
a) Electronic energy	b) Rotational energy
c) Translational energy	d) Vibrational energy
(35) In which type of chromatography, the stationary ple phase is forced through it under pressure?	phase held in a narrow tube and the mobi
a) Column chromatography	b) Planar chromatography
c) Liquid chromatography	d) Gas chromatography
(36) 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
(37) Which of the following cannot be used as adsorbed y?	ent in Column adsorption chromatograph
a) Magnesium oxide	b) Silica gel
c) Activated alumina	d) Potassium permanganate
(38) What is the first stage of the two-stage two-dimen	nsional PAGE?
a) Molecular vibrations	b) Sedimentation
c) Isoelectric focussing	d) HPLC
(39) Which of the following techniques is used to stude olecule?	ly the three-dimensional structure of a m
a) Infra-red spectroscopy	b) X-ray crystallography
c) Mass spectrometry	d) UV-visible spectroscopy
(40) Liquid chromatography can be performed in which	ch 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
(41) In gas chromatography, the basis for separation o is the difference in	f the components of the volatile material
a) Partition coefficients	b) Conductivity
c) molecular weight	d) molarity
(42) Ion exchange chromatography is based on the	

a) electrostatic attraction	b) electrical mobility of ionic species
c) adsorption chromatography	d) partition chromatography
(43) n the most widely used beam splitter, a thir plates of low refractive index solid. Fill the	
a) Mylar	b) Silicon carbide
c) Ferrous oxide	d) Silver chloride
(44) Which of the following is the advantage of	Fourier Transform Spectrometers?
a) Signal to noise ratio is high	 b) Information could be obtained on all frequencies
c) Retrieval of data is possible	d) All of these
(45) Which of the following is the reference that	t is generally used in FTIR interferometer?
a) NaCl solution	b) Alcohol
c) Base solution	d) Air
(46) NMR is the study of absorption of	by nuclei in a magnetic field?
a) Radioactive radiation	b) IR radiation
c) Radio frequency radiation	d) Microwaves
(47) NMR spectroscopy indicates the chemical of	nature of the and spatial positions
a) Electrons, Protons	b) Neutrons, electrons
c) Nuclei, electrons	d) Nuclei, neighbouring nuclei
(48) When energy is absorbed by the sample, the nal developed by which of the following co	
a) Amplifier	b) Photodetector
c) GM counter	d) Radiofrequency detector
(49) Which of the following sources of light is t	the inverse square law valid for?
a) Cylindrical source	b) Searchlight
c) Isotropic point source	d) All types of light sources
(50) Which of the following is the most commo raction patterns?	n instrument for photographic recording of diff
a) Debye-Scherrer powder camera	b) Gamma camera
c) Geiger tube	d) Scintillation counter
(51) Diffractometers are similar to which of the	following?
a) Prism spectrometer	b) Photo multiplier
c) Photovoltaic cell	d) Optical grating spectrometer
(52) Which species of the following is used to be oscopy has been performed?	pombard with the sample for which mass spectr
a) Alpha particles	b) Neutrons
c) Electrons	d) Protons
(53) Light blue-top tubes contain sodium citrate	and are used to collect blood specimens for:
a) CBCs	b) Blood cultures
c) Coagulation studies (PT/INR)	d) Blood sugars

(54) Heat coagulation test of urine is performed	to cneck
a) Protrins	b) Ketone bodies
c) bile salt	d) Cells
(55) To demonstrate the similarity between diffe cific protein coding is called	erent animal species with reference to some spe
a) Phylogenetic plot	b) Zoo plot
c) Animal profiling	d) Garden blot
(56) Which of the following spectroscopy technic	iques is associated with molecular emission?
a) UV-Visible spectroscopy	b) IR spectroscopy
c) Fluorescence spectroscopy	d) X-ray diffraction
(57) The polymerase chain reaction is	_
a) It is a DNA sequencing technique.	b) It is a DNA degradation technique
c) It is a DNA amplification technique	d) All of these
(58) Western bloting technique is the detection of	of
a) specific DNA in a sample	b) specific RNA in a sample
c) specific protein in a sample	d) specific glycolipid in a sample
(59) What is used to transfer nucleic acid from g	gels to membranes for further analysis?
a) Gel electrophoresis	b) PFGE
c) Blotting	d) PCR
(60) When was the original method of southern	blotting developed?
a) 1975	b) 1964
c) 1954	d) 1944