Program: BE Biotechnology Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester V

Course Code: BTC503 and Course Name: Biophysics

Time: 1 hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	If this peptide is normally part of a multimeric protein composed of four identical subunits, what procedure might be needed prior to performing the Edman degradation?
Option A:	The four subunits should be separated and sequenced individually.
Option B:	Two specific cleavages should be done to create two sets of fragments.
Option C:	Peptide bonds should be broken using hydrazine
Option D:	Disulfide bonds should be reduced with mercaptoethanol.
Q2.	Which of the following forces is favorable for protein folding?
Option A:	Hydrophobic interactions
Option B:	Hydrogen bonding
Option C:	Vander Waals forces
Option D:	Ionic bonding
Q3.	A process by which a protein structure assumes its functional shape or conformation is?
Option A:	Denaturing
Option B:	Folding
Option C:	Synthesis
Option D:	Hydrolysis
Q4.	Which property does this lipid share with a typical triacylglycerol?
Option A:	Both contain an ether bond.
Option B:	Both contain a long-chain alcohol.
Option C:	Both are amphipathic
Option D:	Both are saponifiable
Q5.	Which characteristic is shared by this lipid and an eicosanoid
Option A:	This lipid and a leukotriene are both polyunsaturated molecules
Option B:	This lipid and a thromboxane can both be hydrolyzed in base to produce soaps.
Option C:	This lipid and a prostaglandin can both be hydrolyzed in acid to create fatty acids.
Option D:	This lipid and an arachidonic acid both contain glycerol and hydrocarbon chains.
Q6.	In SEM, the image is formed by the electrons that
Option A:	Reflect back
Option B:	Ionize

Option C:	Undergo inversion
Option D:	Pass through
Q7.	Electron Microscope can give a magnification up to
Option A:	400,000X
Option B:	100,000X
Option C:	15000X
Option D:	100X
Q8.	NMR is the study of the absorption of _____ by nuclei in a magnetic field
Option A:	Radioactive radiation
Option B:	IR radiation
Option C:	Radio frequency radiation
Option D:	Microwaves
Q9.	Which of the following is not the work involved of siRNA?
Option A:	Translational inhibition
Option B:	mRNA destruction
Option C:	Base dimerization
Option D:	Promoter silencing
Q10.	Which of the following induces conformational change in protein?
Option A:	Uniport
Option B:	Symport
Option C:	Antiport
Option D:	Facilitated diffusion
Q11.	Motifs that can form α/β horseshoes conformation are rich with which protein residue?
Option A:	Proline
Option B:	Arginine
Option C:	Valine
Option D:	Leucine
Q12.	Which of the following molecules affects the mobility of fatty acyl chains in the plasma membrane?
Option A:	Starch
Option B:	Glycogen
Option C:	Cholesterol
Option D:	Carbohydrates
Q13.	Process of folding does not depend on
Option A:	Concentration of salts
Option B:	pH
Option C:	Solute
Option D:	Solvent
Q14.	Which of the following cannot denature a protein?

Option A:	Iodoacetic acid
Option B:	SDS detergent
Option C:	Urea
Option D:	Heating to 90°C
Q15.	The cathode of transmission electron microscope consists of a
Option A:	Tungsten wire
Option B:	Bulb
Option C:	Iron filament
Option D:	Gold wire
Q16.	Number of NMR signals obtained in CH_3COCH_3 will be
Option A:	6
Option B:	3
Option C:	2
Option D:	1
Q17.	Which of the following component of TEM focuses the beam of electrons on the sample?
Option A:	Ocular lens
Option B:	Condenser lens
Option C:	Stage
Option D:	Column
Q18.	Binding of siRNA to the DNA does not lead to
Option A:	Chromatin remodeling
Option B:	Promoter unavailability
Option C:	Transcriptional inhibition
Option D:	Triple helix formation
Q19.	The basket like structure of filaments in Nuclear Pore Complex has _____ filaments and is located in _____ side of the nuclear membrane.
Option A:	6, nuclear
Option B:	8, nuclear
Option C:	6, cytosolic
Option D:	8, cytosolic
Q20.	Na+ glucose transporter is an example of
Option A:	Symport
Option B:	Antiport
Option C:	Facilitated diffusion
Option D:	ATP driven active transport
Q21.	Which of the following type of membrane is least possible for a phospholipid in the plasma membrane?
Option A:	Flexion
Option B:	Rotation
Option C:	Lateral Diffusion

Option D:	Flip flop
Q22.	The channel in a membrane protein by which an ion or molecule can be transported in and out of the cell membrane is known as
Option A:	Permeation pathway
Option B:	Permeate channel
Option C:	Permeation channel
Option D:	Channel pathway
Q23.	The most abundant phospholipid in the bacterial cell membrane is
Option A:	Phosphatidyletanolamine
Option B:	Phosphatidylcholine
Option C:	Phosphatidylserine
Option D:	Cholesterol
Q24.	Which of the following is true about ribonuclease?
Option A:	Native state which is catalytically inactive is denatured
Option B:	Unfolded state is inactive
Option C:	Renatured ribonuclease is inactive
Option D:	Renaturation involves reestablishment of the correct disulfide cross links
Q25.	The prime contributor of atherosclerosis is the accumulation of
Option A:	Monocytes
Option B:	Mesophyll
Option C:	Albumin
Option D:	Cholesterol

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	D
Q2.	A
Q3.	B
Q4	D
Q5	A
Q6	A
Q7	A
Q8.	C
Q9.	C
Q10.	D
Q11.	D
Q12.	C
Q13.	C
Q14.	A
Q15.	A
Q16.	D

Q17.	B
Q18.	D
Q19.	B
Q20.	A
Q21.	D
Q22.	A
Q23.	A
Q24.	A
Q25.	B