

Program: BE Biotechnology Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: BTE6022 and Course Name: Protein Engineering

Time: 1 hour

Max. Marks: 50

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

Q1.	Among all the heat shock proteins which one is known as chaperonins?
Option A:	Hsp70
Option B:	Hsp32
Option C:	Hsp60
Option D:	Hsp30
Q2.	The number of phi and psi angles in an isolated amino acid (not in a polypeptide chain) is:
Option A:	0
Option B:	3
Option C:	2
Option D:	1
Q3.	Alpha helices are compatible with
Option A:	All possible phi-psi angle combinations.
Option B:	A limited range of phi-psi angle combinations
Option C:	A limited range of phi angles with all possible psi angles.
Option D:	A limited range of psi angles with all possible phi angles.
Q4.	Ubiquitin binds to the _____ amino acid residue for degradation.
Option A:	Proline
Option B:	Lysine
Option C:	Serine
Option D:	Valine
Q5.	Ubiquitin has _____ of amino acids.
Option A:	70
Option B:	75
Option C:	76
Option D:	72
Q6.	NMR spectroscopy indicates the chemical nature of the _____ and spatial positions of _____
Option A:	Electrons, Protons
Option B:	Neutrons, electrons

Option C:	Nuclei, electrons
Option D:	Nuclei, neighbouring nuclei
Q7.	In NMR spectroscopy, the spinning nuclei in a strong magnetic field must be irradiated by which of the following?
Option A:	Perpendicular and stronger field
Option B:	Perpendicular and weaker field
Option C:	Parallel and stronger field
Option D:	Parallel and weaker field
Q8.	Which of the following analytical methods would you choose to investigate whether a compound is a monomer, dimer or trimer?
Option A:	Electron ionization (EI)
Option B:	Electrospray ionization (ESI)
Option C:	Matrix-assisted laser desorption ionization (MALDI)
Option D:	Fast atom bombardment (FAB)
Q9.	In native chemical ligation, _____ of an N-terminal cysteine residue of one peptide attacks the C-terminal thioester of a second peptide to effect transthioesterification
Option A:	The hydroxyl group
Option B:	the thiolate
Option C:	The ester
Option D:	The carboxylic
Q10.	When energy is absorbed by the sample, the absorption can be observed as a change in signal developed by Which of the following components?
Option A:	Amplifier
Option B:	Photodetector
Option C:	GM counter
Option D:	Radiofrequency detector
Q11.	The amino acid that would disrupt the ordered structure of a folded alpha helix is
Option A:	Proline
Option B:	Tyrosine
Option C:	Histidine
Option D:	Lysine
Q12.	_____ is not a method of chemical synthesis of proteins
Option A:	Prior Thiol Capture
Option B:	Acyl initiated capture
Option C:	Expressed protein ligation
Option D:	In situ hybridization
Q13.	_____ is a preferable choice for production of therapeutic proteins both

	on a lab scale and in industry
Option A:	S.aureus
Option B:	E.coli
Option C:	Plants
Option D:	Fungus
Q14.	Bacteriorhodopsin is a protein used by _____
Option A:	Plants
Option B:	Fungi
Option C:	Archae
Option D:	None of the above
Q15.	The amino acid specificity of _____ tyrosyl-tRNA synthetase was studied by site-directed mutagenesis of residues close to the active site.
Option A:	E. coli
Option B:	Bacillus subtilis
Option C:	Bacillus stearothermophilus
Option D:	Thermus aquaticus
Q16.	The first technology that was used to produce therapeutic antibodies was
Option A:	rDNA Technology
Option B:	mouse hybridoma technology
Option C:	ELISA
Option D:	Antisense RNA Technology
Q17.	The structure of a transcriptional attenuator
Option A:	Zinc finger
Option B:	Acidic domain
Option C:	Triple helix
Option D:	Stem loop
Q18.	All of the following are considered weak interactions in proteins except
Option A:	Hydrogen bonds
Option B:	Hydrophobic interactions
Option C:	Ionic Bonds
Option D:	Peptide Bonds
Q19.	Separation of proteins in 2D gel electrophoresis is based
Option A:	Charge
Option B:	Relative mass and charge
Option C:	Relative molecular weight
Option D:	Relative atomic weight of amino acids
Q20.	_____ is a preferable choice for production of therapeutic proteins both on a lab scale and in industry
Option A:	S.aureus

Option B:	E.coli
Option C:	Plants
Option D:	Fungus
Q21.	Bacteriorhodopsin
Option A:	Absorbs light and pumps protons
Option B:	Is in integral membrane protein
Option C:	Contains primarily alpha helical residues
Option D:	All of the above
Q22.	In active transport, the membrane structure that functions is
Option A:	Cholesterol
Option B:	Integral proteins
Option C:	Carbohydrates
Option D:	Hydrophobic molecules
Q23.	X-ray crystallographic studies of the enzyme have suggested that _____ is a major determinant of amino acid specificity
Option A:	Ala-12
Option B:	Gly-181
Option C:	Asp-176
Option D:	Tyr-121
Q24.	_____ are more suitable for protein engineering techniques as compared to _____
Option A:	Full length antibodies, antibody fragments
Option B:	Antibody fragments, full length antibodies
Option C:	Full length antibodies, single amino acids
Option D:	None of the above
Q25.	Which of the following name is given to molecular chaperones?
Option A:	Allosteric protein
Option B:	Heat shock protein
Option C:	Denaturation protein
Option D:	Ribonuclease

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

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