BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Master of Science in Microbiology

Course Name – Microbial Proteomics

Course Code - MMB305B

Semester / Year - Semester III

Time allotted : 75 Minutes | Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 60=60

1. *(Answer any Sixty)*

(i) PI>pH

a) When you add H+ in a neutral solution
b) When you add 1 ml of H2O in a neutral solution
c) When you remove H+ in a neutral solution
d) None of these

(ii) In Sickle cell anemia

a) Number 6 codon CTT changed to CGT
b) Number 6 codon CTT changed to CAT
c) Number 6 codon CTT changed to AGT
d) Number 6 codon CTT changed to CCT

(iii) Allosteric inhibition occurs

a) Due to inhibitor binds in allosteric site
b) Due to inhibitor binds in active site
c) Due to activator binds in active site
d) All of these

(iv) Hydrophilic molecules pass through membrane?

a) Phospholipid part
b) Protein Channel
c) Both Lipid and protein parts
d) None of these

(v) Which subunit of G-protein involve in Adenyl cyclase activation?

a) Alpha subunit
b) Beta subunit

c) Gamma subunit
d) Delta subunit

(vi) In Edman sequencing Phenyl isothiocyanate binds with

a) Peptide bond
b) N- terminal end of the protein
c) C- terminal end of the protein
d) All of these

(vii) In what condition we can separate phenyl thiocarbamoyl derivative from protein?

a) Heat and acidic condition
b) Cold and alkaline condition
c) Heat and alkaline condition
d) Cold and acidic condition

(viii) In which condition phenyl isothiocyanate binds protein

a) Mild alkaline condition
b) Mild acidic condition
c) In neutral pH
d) None of these

(ix) X-ray crystallography determine protein's

a) Atomic and molecular structure
b) Sequence
c) Molecular weight
d) All of these

(x) Covalent bond formation in protein-protein interaction occurs during

a) Post translational modification
b) Translation
c) Signal transduction
d) All of these

(xi) How will you identify Protein DNA interaction?

a) Electrophoretic mobility shift assay
b) MALDI
c) X-ray crystallography
d) All of these

(xii) What is the function of SDS in electrophoresis?

a) SDS stabilize the non-covalent bonds in protein molecules.
b) SDS helps in cross linking of acrylamide
c) SDS disrupts the non-covalent bonds in
d) None of these

protein molecules.

(xiii) In CHIP assay agarose beads binds with

a) DNA
b) Antibody
c) Target protein
d) None of these

(xiv) What types of hormone binds with intracellular receptor?

a) Lipid insoluble hormones
b) Lipid soluble hormones
c) Water soluble hormones
d) None of these

(xv) The effect of increased levels of hydrogen ions in the inter-membrane space of the mitochondria is

a) Increase ATP production
b) Decreased levels of oxidative phosphorylation
c) Increased levels of water in inter-membrane space
d) Decreased levels of chemiosmosis

(xvi) MALDI sample volume is

a) More then matrix volume
b) Less than matrix volume
c) Equal to matrix volume
d) None of these

(xvii) Linker protein helps in

a) Cytoskeleton with Nucleus
b) Cytoskeleton with extracellular matrix
c) Hormone receptor interaction
d) None of these

(xviii) Trypsin fragmented protein sample used in

a) Electrospray Ionisation Mass Spectrometry
b) MALDI-TOF MS
c) All of these
d) None of these

(xix) Number of chiral centers in isoleucine is

a) 1
b) 2
c) 3
d) 4

(xx) What is the maximum wavelength that Tryptophan and tyrosine absorb?

a) 260nm
b) 257nm
c) 280nm
d) 230nm

(xxi) How many peptide chain present in tertiary structure of protein?

a) 2
b) 1
c) 4
d) 3

(xxii) What type of bond present in secondary structure of protein?

a) Ionic
b) Hydrophobic
c) Hydrogen
d) None of these

(xxiii) What is the purpose of using bromophenol blue in the sample buffer?

a) To ionize the sample.
b) To monitor the electrophoretic run
c) To act as standard control
d) To adjust the pH of sample.

(xxiv) Which of the following is true about phosphodiester linkage?

a) 5'-phosphate group of one nucleotide unit is joined to the 3'-hydroxyl group of the next nucleotide
b) 5'-phosphate group of one nucleotide unit is joined to the 5'-hydroxyl group of the next nucleotide
c) 3'-phosphate group of one nucleotide unit is joined to the 5'-hydroxyl group of the next nucleotide
d) 3'-phosphate group of one nucleotide unit is joined to the 3'-hydroxyl group of the next nucleotide

(xxv) The pH of the stacking buffer in SDS PAGE is

a) 4.4
b) 8.800000000000001
c) 5.8
d) 6.8

(xxvi) The pH of the resolving buffer in SDS PAGE is

a) 8.800000000000001
b) 6.8
c) 4.4
d) 9.800000000000001

(xxvii) The role of APS in SDS PAGE is

a) To break hydrogen bond
b) Used with TEMED to catalyze the polymerization of acrylamide and bisacrylamide.
c) To give –ve charge to amino acids
d) All of these

(xxviii) Time of flight based on

a) Shape of the particles
b) Mass of the particles
c) Charge of the particles
d) All of these

(xxix) ?-cyano-4-hydroxycinnamic acid used in MALDI as

a) Matrix
b) Sample
c) Detector
d) All of these

(xxx) Yeast two hybrid system is used to study -

a) Protein-protein interaction
b) Protein-DNA interaction
c) None of these
d) Both Protein-protein interaction & Protein-DNA interaction

(xxxi) Advantages of using Yeast Two hybrid system are

a) The assay works well for membrane bound proteins
b) The assay can screen for interaction partners of a protein without the need for protein purification
c) The assay secretes proteins from the cell and thus works well for proteins with di-sulfide bridges
d) The assay only detects direct association between 2 proteins

(xxxii) Which of the following is accurate statement for cDNA library?

a) It can also be called an expressed sequence tag (EST) library

b) It consists of coding sequences from genes that are expressed

c) It is specific to the set of conditions under which the original mRNA was generated

d) All of these

(xxxiii) In an immunoprecipitation experiment, the protein-protein complexes can be captured on

a) Protein A/Protein G Sepharose resin

b) Gel chromatography Sepharose columns

c) SDS-PAGE gels

d) None of these

(xxxiv) Which of the following components is NOT required for a successful cell free protein synthesis reaction?

a) Proteases

b) DNA template

(xxxv) What is the nature of an enzyme?

a) Vitamin

b) Lipid

c) Carbohydrate

d) Protein

(xxxvi) Mark the correct function of enzyme, Peptidase?

a) Cleave phosphodiester bond

b) Cleave amino bonds

c) Remove phosphate from a substrate

d) Removal of H2O

(xxxvii) Name the enzyme secreted by pancreas?

a) Pepsin

b) Chymotrypsin

c) Trypsin

d) Alcohol dehydrogenase

(xxxviii) Butanol is obtained by fermenting molasses by?

a) Clostridium butyricum and Clostridium acetobutylicum

b) Clostridium butyricum and Clostridium tetanai

c) Clostridium butyricum and lactobacillus

d) Clostridium butyricum and Clostridium oceanicum

(xxxix) Which of the following is the source of Vitamin A

a) Sterptococcus
b) Yeast
c) both Sterptococcus and Yeast
d) Rhodotorula gracilis

(xl) Yeast cells are good source of

a) Vitamin A and B
b) Vitamin B and D
c) Vitamin A and D
d) All of these

(xli) Unicelled microbes grown as source of proteins are called

a) Single cell proteins
b) Microbial proteins
c) Unicelled proteins
d) All of these

(xlii) Which of the following are rich source of protein

a) Spirulina and Chlorella
b) Scenedesmus
c) Chlorella and Scendesmus
d) All of these

(xliii) Zymase is obtained from

a) Saccharomyces cerevisiae
b) Saccharomyces ludwigi
c) Saccharomyces ludwigi
d) Saccharomyces boulardii

(xliv) Fungus without mycelium is

a) Agaricus
b) Albugo
c) Saccharomyces
d) Puccinia

(xlv) Yeast produces an enzyme complex, which is responsible for fermentation

a) Zymase
b) Dehydrogenase
c) Aldolase
d) Invertase

(xlvi) The 2 micrometer circle found in yeast is a _____

a) Phage
b) Plasmid

c) Virus
d) Gene product

(xlvii) What are REP1 and REP2 genes in the plasmid used for?

a) Origin
b) Expression
c) Replication
d) Host lysis

(xlviii) Which selection system is used in a yeast plasmid recombinant?

a) Antibiotic
b) Lac
c) Auxotrophic mutant
d) cI gene

(xlix) What is an auxotrophic mutant?

a) Host cell
b) Defective plasmid
c) Yeast cell
d) Transformed cell

(l) On which medium are yeast plasmids transformed cells plated?

a) Luria Broth
b) Minimal
c) Agar
d) Nutrient

(li) What are YEps?

a) Mutated yeast plasmids
b) Transformed cells
c) Hybrid of yeast and bacteria
d) Yeast episomal plasmids

(lii) Yep13 is an example of _____

a) Host bacterium
b) Bacterial plasmid
c) Yeast integrative plasmid
d) Yeast episomal plasmid

(liii) What is a shuttle vector?

a) A vector that can be used with two/more systems
b) Hybrid vector
c) Mutated yeast plasmid
d) The transformed cell further used for transformation

(liv) For which of the following plasmids purification of a recombinant molecule from the transformed cell can be difficult?

a) Episomal plasmids
b) Integrative plasmids
c) Bacterial plasmid
d) All plasmids

(lv) The strongest hydrogen bond acceptor

a) Amine nitrogen
b) Aniline nitrogen
c) Carboxylate oxygen
d) Amide nitrogen

(lvi) Which statement is not true about regarding transport proteins?

a) Tresent in cell membranes
b) Transport hydrophobic steroids across cell membranes
c) Carry polar molecules across the hydrophobic cell membrane
d) Transport amino acids across cell membranes

(lvii) A typical messenger for a tyrosine kinase linked receptor?

a) growth factors
b) acetylcholine
c) cytokines
d) insulin

(lviii) Acidic and basic amino acids are

a) hydrophilic
b) hydrophobic
c) neutral
d) all of these

(lix) Which one infection could be orally treated with an antibacterial agent?

a) Brain infection
b) lung infection
c) kidney infection
d) gut infection

(lx) The sugar molecule in a nucleotide is

a) Pentose
b) Hexose
c) Tetrose
d) Triose