Andhra Pradesh State Council of Higher Education

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Bio Technology 29th April 2026 Shift 1
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Bio Technology

Group Number :	1
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Show Attended Group? :	No
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Bio Technology

Section Id :	75207654
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	120
Number of Questions to be attempted :	120
Section Marks :	120
Section Negative Marks :	0
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Sub-Section Number :	1
Sub-Section Id :	75207654
Question Shuffling Allowed :	Yes
Is Section Default? :	No

Question Number : 1 Question Id : 7520766361 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ is/ are essential in nucleic acid synthesis.

Options :

1. ✔ Purines and pyramidines

2. ✖ Vitamins

3. ✖ Metals

4. ✖ Amino acids

Question Number : 2 Question Id : 7520766362 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A process by which the genetic information of organism is changed is

Options :

1. ✖ Mutation

2. ✖ DNA replication

3. ✖ Gene resistance

4. ✔ Mutagenesis

Question Number : 3 Question Id : 7520766363 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

In enzymes, the chains of amino acids linked together by

Options :

1. ✖ Vandervall bond

2. ✔ Peptide bond

3. ✖ Nitrogen bond

4. ✖ Hydrogen bond

Question Number : 4 Question Id : 7520766364 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

_____ is the order of the reaction for which rates are independent of substrate concentration.

Options :

1. ✖ Three

2. ✖ Two

3. ✖ One

4. ✔ Zero

Question Number : 5 Question Id : 7520766365 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

In DNA, adenine normally pairs with

Options :

1. ✖ Cytocine

2. ✖ Guanine

3. ✖ Uracil

4. ✔ Thymine

Question Number : 6 Question Id : 7520766366 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

_____ is a purine.

Options :

1. ✖ Cytocine

2. ✖ Guanine

3. ✖ Uracil

4. ✔ Adenine

Question Number : 7 Question Id : 7520766367 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The gene linkage minimize the chances of

Options :

1. ✖ cross over

2. ✖ segregation

3. ✔ recombination

4. ✖ assortment

Question Number : 8 Question Id : 7520766368 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Chemical preservatives do not include

Options :

1. ✖ alcohol

2. ✖ sulfites

3. ✖ organic acids

4. ✔ starch

Question Number : 9 Question Id : 7520766369 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The process of extracting metals from ores is called

Options :

1. ✔ Bioleaching

2. ✖ Biofiltration

3. ✖ Bioextraction

4. ✖ Microbial extraction

Question Number : 10 Question Id : 7520766370 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Damkohler number(N_{Da}) is the ratio of

Options :

1. ✔ the maximum reaction rate to the maximum mass transfer rate

2. ✖ the minimum reaction rate to the maximum mass transfer rate

3. ✖ the maximum reaction rate to the minimum mass transfer rate

4. ✖ the minimum reaction rate to the minimum mass transfer rate

Question Number : 11 Question Id : 7520766371 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Biosensors contains

Options :

1. ✔ Immobilized enzyme

2. ✖ Metal sensing devices

3. ✖ Mobilized enzymes

4. ✖ A bar code sensing device

Question Number : 12 Question Id : 7520766372 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Power number is expressed as

Options :

1. ✔ $P/ N^3D_i^5\rho$

2. ✖ $P/ N^2D_i^2\rho$

3. ✖ $P / N^3D_i^3\rho$

4. ✖ $P / N^2D_i^3\rho$

Question Number : 13 Question Id : 7520766373 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The power required by an impeller in a gas sparged system compared to the power required by impeller operating at same speed in a gas free liquid is usually

Options :

1. ✔ lesser

2. ✖ higher

3. ✖ same

4. ✖ data insufficient

Question Number : 14 Question Id : 7520766374 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which of the following is used as precursor for the fermentation production of Penicillin?

Options :

1. ✖ Sulfite waste liquor

2. ✔ Corn steep liquor

3. ✖ Propionate

4. ✖ Cyanide

Question Number : 15 Question Id : 7520766375 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Cellular organelle associated with photosynthesis is

Options :

1. ✔ Chloroplast

2. ✖ Ribosome

3. ✖ Mitochondria

4. ✖ ETR

Question Number : 16 Question Id : 7520766376 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The exchange of segments between non homologous chromosomes is best known as

Options :

1. ✖ Translation

2. ✔ Translocation

3. ✖ Recombination

4. ✖ Crossing over

Question Number : 17 Question Id : 7520766377 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

DNA finger printing was developed by

Options :

1. ✖ Francis Crick

2. ✖ Elizabeth Bugie

3. ✖ Robert Koch

4. ✔ Alec Jeffery

Question Number : 18 Question Id : 7520766378 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Humoral immunity is also called as

Options :

1. ✔ Antibody mediated immunity

2. ✖ Non-specific immune response

3. ✖ Antigen mediated immunity

4. ✖ Antiseptic mediated immunity

Question Number : 19 Question Id : 7520766379 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The major molecules responsible for rejection of transplant is

Options :

1. ✖ B cells

2. ✖ T cells

3. ✔ MHC molecule

4. ✖ Antibodies

Question Number : 20 Question Id : 7520766380 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

T cell receptors or antibodies react with antigens

Options :

1. ✖ because both are made by lymphocytes

2. ✔ because of complementary of molecular fit of both with antigen

3. ✖ because both 'have light chain and heavy chain polypeptides

4. ✖ cause histamine release

Question Number : 21 Question Id : 7520766381 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Western blotting uses _____ to detect specific proteins.

Options :

1. ✖ a known DNA sequence

2. ✖ a RNA Molecule

3. ✖ a purified protein

4. ✔ an antibody

Question Number : 22 Question Id : 7520766382 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

DNA inserted into a _____ can be tested or manipulated in two different cell types.

Options :

1. ✖ Phasmid

2. ✖ Transfer vector

3. ✔ Shuttle vector

4. ✖ Phagemid

Question Number : 23 Question Id : 7520766383 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The first bioinformatics database was created by

Options :

1. ✖ Pearson

2. ✔ Dayhoff

3. ✖ Richard Durbin

4. ✖ Michael j.Dunn

Question Number : 24 Question Id : 7520766384 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which of the following is a protein sequence data base?

Options :

1. ✖ DDBJ

2. ✖ EMBL

3. ✖ GenBank

4. ✔ PIR

Question Number : 25 Question Id : 7520766385 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Analysing or comparing entire genome of species is

Options :

1. ✖ Bioinformatics

2. ✔ Genomics

3. ✖ Proteomics

4. ✖ Pharmacogenomics

Question Number : 26 Question Id : 7520766386 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

BLOSUM matrices are used for

Options :

1. ✖ Phylogenetic analysis

2. ✖ Multiple sequence alignment

3. ✔ Pairwise sequence alignment

4. ✖ Composite database

Question Number : 27 Question Id : 7520766387 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which component provides rigidity to bacterial cell walls?

Options :

1. ✖ Cellulose

2. ✖ Chitin

3. ✔ Peptidoglycan

4. ✖ Lipopolysaccharide

Question Number : 28 Question Id : 7520766388 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Match metabolic pathways

A. Glycolysis	1. Occurs in mitochondria
B. Krebs cycle	2. Cytoplasm
C. Electron Transport Chain	3. Inner mitochondrial membrane
D. Fermentation	4. No oxygen required

Options :

1. ✔ A-2, B-1, C-3, D-4

2. ✖ A-1, B-2, C-4, D-3

3. ✖ A-2, B-3, C-1, D-4

4. ✖ A-4, B-1, C-2, D-3

Question Number : 29 Question Id : 7520766389 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Frameshift mutations result from_____.

Options :

1. ✖ Recombination

2. ✖ DNA methylation

3. ✖ Base substitution

4. ✔ Deletion or insertion of nucleotides

Question Number : 30 Question Id : 7520766390 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which organism performs oxygenic photosynthesis?

Options :

1. ✖ Purple bacteria

2. ✔ Cyanobacteria

3. ✖ Methanogens

4. ✖ Green Sulphur bacteria

Question Number : 31 Question Id : 7520766391 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which structure is present in prokaryotes but absent in eukaryotes?

Options :

1. ✖ Mitochondria

2. ✖ Ribosomes

3. ✔ Nucleoid

4. ✖ Golgi apparatus

Question Number : 32 Question Id : 7520766392 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Inclusion bodies contain_____.

Options :

1. ✖ DNA

2. ✖ Lipids

3. ✖ Active proteins

4. ✔ Misfolded proteins

Question Number : 33 Question Id : 7520766393 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Salt bridges occur between_____.

Options :

1. ✖ Hydrophobic residues

2. ✔ Charged residues

3. ✖ Aromatic residues

4. ✖ Backbone atoms

Question Number : 34 Question Id : 7520766394 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Assertion (A): Allosteric enzymes show hyperbolic kinetics

Reason (R): They follow Michaelis-Menten behaviour

Options :

1. ✖ Both true, R explains A

2. ✖ Both true, R does not explain A

3. ✖ A true, R false

4. ✔ A false, R true

Question Number : 35 Question Id : 7520766395 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

GLUT transporters show:

Options :

1. ✔ Facilitated diffusion

2. ✖ Active transport

3. ✖ Endocytosis

4. ✖ ATP dependence

Question Number : 36 Question Id : 7520766396 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

GPCR activation leads to

Options :

1. ✖ DNA replication

2. ✔ G-protein activation

3. ✖ Ribosome formation

4. ✖ ATP synthesis

Question Number : 37 Question Id : 7520766397 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Amino acid production is commonly regulated by

Options :

1. ✔ Feedback inhibition

2. ✖ Catabolite repression

3. ✖ Heat shock

4. ✖ Osmotic stress

Question Number : 38 Question Id : 7520766398 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

His-tag purification uses

Options :

1. ✔ Metal affinity

2. ✖ Gel filtration

3. ✖ Dialysis

4. ✖ Ion exchange

Question Number : 39 Question Id : 7520766399 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Citric acid is industrially produced using

Options :

1. ✖ *E. coli*

2. ✔ *Aspergillus Niger*

3. ✖ *Saccharomyces cerevisiae*

4. ✖ *Bacillus subtilis*

Question Number : 40 Question Id : 7520766400 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Chromatography types

A.	Ion exchange	1.	Specific binding
B.	Gel filtration	2.	Size-based
C.	Affinity	3.	Hydrophobicity
D.	Hydrophobic interaction	4.	Charge-based

Options :

1. ✖ A-2, B-1, C-3, D-4

2. ✖ A-4, B-2, C-3, D-1

3. ✖ A-1, B-3, C-2, D-4

4. ✔ A-4, B-2, C-1, D-3

Question Number : 41 Question Id : 7520766401 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A cross between an F1 hybrid and one of its parental genotypes is called

Options :

1. ✔ Back cross

2. ✖ Dihybrid cross

3. ✖ Test cross

4. ✖ Monohybrid cross

Question Number : 42 Question Id : 7520766402 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The main factor that leads to Founder effect in a population is_____.

Options :

1. ✖ Isolation

2. ✖ Speciation

3. ✔ Genetic Drift

4. ✖ Recombination

Question Number : 43 Question Id : 7520766403 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

If a cell has one chromosome in excess of the normal number of chromosomes present in the nucleus, it is referred to as

Options :

1. ✔ aneuploid

2. ✖ polyploid

3. ✖ tetraploid

4. ✖ Tetraploid

Question Number : 44 Question Id : 7520766404 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A messenger RNA is 339 bases long including the initiation and termination codon. The number of amino acids in the polypeptide translated from this is _____.

Options :

1. ✖ 110

2. ✔ 112

3. ✖ 660

4. ✖ 666

Question Number : 45 Question Id : 7520766405 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Non-Newtonian fluids show

Options :

1. ✖ Constant viscosity

2. ✔ Variable viscosity

3. ✖ Zero viscosity

4. ✖ Infinite viscosity

Question Number : 46 Question Id : 7520766406 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The Monod equation relates growth rate with_____.

Options :

1. ✖ Temperature

2. ✖ pH

3. ✖ Oxygen

4. ✔ Substrate concentration

Question Number : 47 Question Id : 7520766407 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Chemostat is a type of _____.

Options :

1. ✖ Batch reactor

2. ✔ Continuous reactor

3. ✖ Fed-batch

4. ✖ Plug flow reactor

Question Number : 48 Question Id : 7520766408 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Increasing viscosity in fermentation broth leads to_____.

Options :

1. ✔ Lower k_La

2. ✖ Higher oxygen transfer

3. ✖ Faster growth

4. ✖ Better mixing

Question Number : 49 Question Id : 7520766409 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which one of the following acts as a Carbon source in plant tissue culture?

Options :

1. ✔ Sucrose

2. ✖ Auxin

3. ✖ Cytokinins

4. ✖ Charcoal

Question Number : 50 Question Id : 7520766410 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Human insulin is synthesised as a prohormone, which contains an extra stretch called

Options :

1. ✖ A-peptide

2. ✖ B-peptide

3. ✖ A6-A11 disulfide bond

4. ✔ C-peptide

Question Number : 51 Question Id : 7520766411 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which bioassay is used to detect the presence of auxin?

Options :

1. ✖ Only tobacco pith culture

2. ✖ Tobacco pith culture and Avena curvature test

3. ✖ Tobacco pith culture and Split pea stem curvature test

4. ✔ Split pea stem curvature test and Avena curvature test

Question Number : 52 Question Id : 7520766412 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Reserpine, a drug used to reduce high blood pressure, is extracted from_____.

Options :

1. ✖ Brassica oleraceae

2. ✖ Atropa belladonna

3. ✔ Rauwolfia serpentina

4. ✖ Digitalis purpurea

Question Number : 53 Question Id : 7520766413 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which technique is most widely preferred for the industrial production of plant secondary metabolites?

Options :

1. ✖ Meristem culture

2. ✔ Cell suspension culture

3. ✖ Protoplast culture

4. ✖ Organ culture

Question Number : 54 Question Id : 7520766414 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Glutamine is a critically important nutrient in animal cell culture media because it primarily functions as

Options :

1. ✖ An exclusive carbon source for ATP generation through full oxidation in Mitochondria

A source of nitrogen for nucleotide and non-essential amino acid biosynthesis

2. ✔

3. ✖ A pH stabilizer that prevents acidification of the culture medium

4. ✖ An attachment factor required only by adherent cells

Question Number : 55 Question Id : 7520766415 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

During high-density mass cultivation in bioreactors, the two major metabolic by products that accumulate and limit cell growth and productivity are_____.

Options :

1. ✔ Lactate and ammonia

2. ✖ Ethanol and carbon dioxide

3. ✖ Acetate and formate

4. ✖ Urea and uric acid

Question Number : 56 Question Id : 7520766416 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

In macrocarrier culture systems, the main limitation compared to microcarrier culture is_____.

Options :

1. ✔ Difficulty in achieving uniform cell distribution and nutrient/oxygen diffusion into the interior of the carrier

2. ✖ Lower surface area available for cell attachment and growth

3. ✖ Inability to support anchorage-dependent cells

4. ✖ Extremely high shear sensitivity even at very low agitation speeds

Question Number : 57 Question Id : 7520766417 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Gene arrangements in which of the following cell types lead to antigen receptor diversity in immune cells?

Options :

1. ✖ Macrophages

2. ✔ B Cells

3. ✖ T Cells

4. ✖ NK Cells

Question Number : 58 Question Id : 7520766418 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Vaccine is an example of_____.

Options :

1. ✖ Naturally acquired passive immunity

2. ✖ Naturally acquired active immunity

3. ✖ Artificially acquired passive immunity

4. ✔ Artificially acquired active immunity

Question Number : 59 Question Id : 7520766419 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which among the following contribute to the auto immune disorder Myasthenia gravis?

Options :

1. ✖ T Cells

2. ✖ Macrophages

3. ✖ Antibodies

4. ✔ Interleukins

Question Number : 60 Question Id : 7520766420 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

What is the purpose of using HAT medium in hybridoma technology?

Options :

1. ✖ To kill unfused B-lymphocytes

2. ✖ To kill unfused myeloma cells

3. ✔ To selectively allow growth of only hybridoma cells

4. ✖ To increase the rate of cell fusion

Question Number : 61 Question Id : 7520766421 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which of the following enzymes produces "sticky ends" in DNA?

Options :

1. ✖ DNA ligase

2. ✖ Exonuclease

3. ✔ Restriction endonuclease EcoRI

4. ✖ DNA polymerase

Question Number : 62 Question Id : 7520766422 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Theoretical number of products formed after "n" cycles of PCR per template strand are_____.

Options :

1. ✖ 2^n

2. ✖ n^{10}

3. ✔ n^2

4. ✖ 10^n

Question Number : 63 Question Id : 7520766423 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

DNA fingerprinting is based on variation in_____.

Options :

1. ✖ Ribosomal RNA

2. ✔ VNTRs

3. ✖ tRNA genes

4. ✖ Introns only

Question Number : 64 Question Id : 7520766424 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which vector is commonly used in gene therapy?

Options :

1. ✖ Yeast artificial chromosome

2. ✔ Viral vectors

3. ✖ Cosmids

4. ✖ Plasmids only

Question Number : 65 Question Id : 7520766425 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A FASTA file begins with which symbol to indicate a header line?

Options :

1. ✖ #

2. ✖ @

3. ✔ >

4. ✖ $

Question Number : 66 Question Id : 7520766426 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

In phylogenetic tree construction, which method is distance-based?

Options :

1. ✖ Maximum likelihood

2. ✖ Maximum parsimony

3. ✔ Neighbor-joining

4. ✖ Bayesian inference

Question Number : 67 Question Id : 7520766427 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Protein arrays are primarily used to study_____.

Options :

1. ✖ Protein sequence

2. ✔ Protein-protein interactions and expression

3. ✖ Trypsin digested proteins

4. ✖ Protein confirmation

Question Number : 68 Question Id : 7520766428 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

In molecular simulations, what is the role of a force field?

Options :

1. ✖ Predicts gene expression

2. ✖ Determines DNA sequence

3. ✔ Defines potential energy functions for atoms

4. ✖ Aligns protein sequences

Question Number : 69 Question Id : 7520766429 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which of the following structures is present only in prokaryotic cells?

Options :

1. ✖ Mitochondria

2. ✖ Nucleus

3. ✔ Nucleoid

4. ✖ Endoplasmic reticulum

Question Number : 70 Question Id : 7520766430 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

In aerobic respiration, the final electron acceptor is_____.

Options :

1. ✖ Carbon dioxide

2. ✔ Oxygen

3. ✖ Nitrate

4. ✖ Sulphate

Question Number : 71 Question Id : 7520766431 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Nitrogen fixation is the conversion of_____.

Options :

1. ✖ Nitrate to nitrogen gas

2. ✔ Nitrogen gas to ammonia

3. ✖ Ammonia to nitrite

4. ✖ Nitrite to nitrate

Question Number : 72 Question Id : 7520766432 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Viruses are best described as_____.

Options :

1. ✖ Prokaryotic cells

2. ✖ Eukaryotic cells

3. ✖ Independent living organisms

4. ✔ Obligate intracellular parasites

Question Number : 73 Question Id : 7520766433 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Hydrophobic interactions are mainly driven by_____.

Options :

1. ✖ Electrostatic attraction

2. ✔ Entropy increase of water

3. ✖ Covalent bonding

4. ✖ Hydrogen bonding

Question Number : 74 Question Id : 7520766434 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The active site of an enzyme is_____.

Options :

1. ✖ Non-specific region

2. ✖ Site of protein synthesis

3. ✖ Site of degradation

4. ✔ Site of substrate binding

Question Number : 75 Question Id : 7520766435 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Net ATP yield in glycolysis is_____.

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 4

4. ✖ 6

Question Number : 76 Question Id : 7520766436 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Final electron acceptor in oxidative phosphorylation is_____.

Options :

1. ✔ Oxygen

2. ✖ NAD+

3. ✖ FAD

4. ✖ ATP

Question Number : 77 Question Id : 7520766437 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Receptor tyrosine kinases function by_____.

Options :

1. ✖ Degrading ATP

2. ✔ Phosphorylating tyrosine residues

3. ✖ Breaking DNA

4. ✖ Transporting ions

Question Number : 78 Question Id : 7520766438 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The origin of replication in bacteria is called_____.

Options :

1. ✔ OriC

2. ✖ Promoter

3. ✖ Enhancer

4. ✖ Terminator

Question Number : 79 Question Id : 7520766439 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The start codon for protein synthesis is_____.

Options :

1. ✖ UAA

2. ✖ UGA

3. ✖ UAG

4. ✔ AUG

Question Number : 80 Question Id : 7520766440 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Genes located close together on a chromosome tend to_____.

Options :

1. ✔ Show linkage

2. ✖ Assort independently

3. ✖ Mutate frequently

4. ✖ Be recessive

Question Number : 81 Question Id : 7520766441 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Ethanol fermentation is typically carried out under_____.

Options :

1. ✖ Aerobic conditions

2. ✖ Microaerophilic conditions

3. ✖ Phototrophic conditions

4. ✔ Anaerobic conditions

Question Number : 82 Question Id : 7520766442 Question Type : MCQ

Correct Marks : 1 Wrong Marks : 0

Entrapment of enzyme involves_____.

Options :

1. ✖ Binding enzyme to surface

2. ✖ Chemical modification

3. ✖ Denaturation

4. ✔ Enclosing enzyme in a matrix

Question Number : 83 Question Id : 7520766443 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Biogas production occurs under_____.

Options :

1. ✖ Aerobic conditions

2. ✔ Anaerobic conditions

3. ✖ High oxygen pressure

4. ✖ UV radiation

Question Number : 84 Question Id : 7520766444 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Composting is_____.

Options :

1. ✔ Aerobic degradation of organic waste

2. ✖ Anaerobic process

3. ✖ Chemical oxidation

4. ✖ Radiation process

Question Number : 85 Question Id : 7520766445 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

In growth-associated product formation_____.

Options :

1. ✔ Product formation is directly linked to growth

2. ✖ Product formation is independent of growth

3. ✖ Product forms only in stationary phase

4. ✖ No product is formed

Question Number : 86 Question Id : 7520766446 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Fed-batch fermentation involves

Options :

1. ✖ Continuous removal of culture

2. ✖ No substrate addition

3. ✔ Intermittent addition of substrate

4. ✖ Only gas exchange

Question Number : 87 Question Id : 7520766447 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Oxygen transfer rate (OTR) depends on

Options :

1. ✖ Pressure only

2. ✖ Temperature only

3. ✖ Volume only

4. ✔ Concentration gradient and k_La

Question Number : 88 Question Id : 7520766448 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Continuous stirred tank reactor (CSTR) is characterized by

Options :

1. ✖ No mixing

2. ✖ Plug flow

3. ✖ No reaction

4. ✔ Complete mixing

Question Number : 89 Question Id : 7520766449 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Plant cell totipotency refers to

Options :

1. ✖ Ability to divide only

2. ✖ Ability to photosynthesize

3. ✖ Ability to mutate

4. ✔ Ability to form a whole plant

Question Number : 90 Question Id : 7520766450 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which of the following is a plant-derived industrial product?

Options :

1. ✖ Insulin

2. ✖ Penicillin

3. ✖ Ethanol

4. ✔ Morphine

Question Number : 91 Question Id : 7520766451 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Monoclonal antibodies are_____.

Options :

1. ✖ Polyclonal mixtures

2. ✔ Identical antibodies from single clone

3. ✖ Produced only in plants

4. ✖ DNA molecules

Question Number : 92 Question Id : 7520766452 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Overexpression of rate-limiting enzymes leads to_____.

Options :

1. ✖ Reduced flux

2. ✔ Increased pathway flux

3. ✖ Cell death

4. ✖ Gene deletion

Question Number : 93 Question Id : 7520766453 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A key difference in animal cell culture media is the requirement for_____.

Options :

1. ✖ High salt concentration

2. ✖ Only glucose

3. ✔ Growth factors and hormones

4. ✖ No vitamins

Question Number : 94 Question Id : 7520766454 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Recombinant protein production in animal cells is typically_____.

Options :

1. ✖ Growth-independent

2. ✖ Only during death phase

3. ✔ Growth-associated or partially growth-associated

4. ✖ Independent of nutrients

Question Number : 95 Question Id : 7520766455 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Oxygen limitation in animal cell culture leads to

Options :

1. ✔ Reduced cell growth and viability

2. ✖ Increased ATP production

3. ✖ DNA synthesis

4. ✖ Protein folding

Question Number : 96 Question Id : 7520766456 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Macrocarriers differ from microcarriers in that they

Options :

1. ✖ Are smaller in size

2. ✔ Provide structured growth surfaces

3. ✖ Are used only for bacteria

4. ✖ Prevent cell attachment

Question Number : 97 Question Id : 7520766457 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

In cloning, reprogramming of somatic nucleus is achieved by

Options :

1. ✔ Cytoplasmic factors in oocyte

2. ✖ DNA polymerase

3. ✖ Ribosomes

4. ✖ Growth hormones

Question Number : 98 Question Id : 7520766458 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which of the following is a component of innate immunity?

Options :

1. ✖ Memory B cells

2. ✖ Cytotoxic T cells

3. ✔ Natural killer cells

4. ✖ Plasma cells

Question Number : 99 Question Id : 7520766459 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Graft versus host disease occurs when

Options :

1. ✖ Host attacks graft tissue

2. ✖ Graft immune cells attack host tissue

3. ✔ Both graft and host are inactive

4. ✖ Only antibodies are involved

Question Number : 100 Question Id : 7520766460 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which of the following restriction enzymes produces blunt ends?

Options :

1. ✖ EcoRI

2. ✖ HindIII

3. ✔ SmaI

4. ✖ BamHI

Question Number : 101 Question Id : 7520766461 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Yeast artificial chromosomes (YACs) are useful because they

Options :

1. ✔ Carry very large DNA fragments

2. ✖ Replicate only in bacteria

3. ✖ Are single-stranded DNA vectors

4. ✖ Lack centromeres

Question Number : 102 Question Id : 7520766462 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The European Bioinformatics Institute maintains which nucleotide database?

Options :

1. ✖ GenBank

2. ✖ DDBJ

3. ✔ EMBL

4. ✖ UniProt

Question Number : 103 Question Id : 7520766463 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which database contains 3D structures of biomolecules?

Options :

1. ✖ GenBank

2. ✖ Swiss-Prot

3. ✔ Protein Data Bank

4. ✖ EMBL

Question Number : 104 Question Id : 7520766464 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which method is used for local sequence alignment?

Options :

1. ✖ Needleman–Wunsch

2. ✔ Smith–Waterman

3. ✖ ClustalW

4. ✖ PhyML

Question Number : 105 Question Id : 7520766465 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Which file format includes both sequence and quality scores?

Options :

1. ✖ FASTA

2. ✖ GenBank

3. ✔ FASTQ

4. ✖ PDB

Question Number : 106 Question Id : 7520766466 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

For a culture, $\mu_{max} = 0.8\ h^{-1}$ and Ks = 0.2 g/L. At substrate concentration S = 0.2 g/L, μ is_____.

Options :

1. ✖ $0.2\ h^{-1}$

2. ✔ $0.4\ h^{-1}$

3. ✖ $0.6\ h^{-1}$

4. ✖ $0.8h^{-1}$

Question Number : 107 Question Id : 7520766467 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

For a continuous reactor with $D = 0.2\ h^{-1}$, residence time (τ) is_____.

Options :

1. ✖ 2 h

2. ✖ 3 h

3. ✔ 5 h

4. ✖ 10 h

Question Number : 108 Question Id : 7520766468 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

In a batch culture, biomass concentration increases from 0.5 g/L to 4 g/L in 2 hours. The specific growth rate (μ) is_____.

Options :

1. ✖ 0.693 h^{-1}

2. ✔ 1.039 h^{-1}

3. ✖ 1.386 h^{-1}

4. ✖ $2.079\ h^{-1}$

Question Number : 109 Question Id : 7520766469 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A circular plasmid of 6 kb has a single EcoRI site. After complete digestion, how many fragments are produced?

Options :

1. ✖ 0

2. ✔ 1

3. ✖ 2

4. ✖ 6

Question Number : 110 Question Id : 7520766470 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

A DNA probe of 1000 nucleotides incorporates radioactive nucleotides at 10% efficiency. Number of labelled nucleotides is_____.

Options :

1. ✖ 10

2. ✖ 50

3. ✔ 100

4. ✖ 200

Question Number : 111 Question Id : 7520766471 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The system of equations $2x + y = 5, x - 3y = -1, 3x + 4y = k$ is consistent when k is

Options :

1. ✖ 1

2. ✖ 2

3. ✖ 5

4. ✔ 10

Question Number : 112 Question Id : 7520766472 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Let $A = \begin{pmatrix} 1 & x & 2x \\ 1 & 3x & 5x \\ 1 & 3 & 4 \end{pmatrix}$ be a matrix with $x \neq 0$. If $\det(A) = 0$, then $x =$ _____

Options :

1. ✖ -2

2. ✔ -1

3. ✖ 1

4. ✖ $\frac{1}{2}$

Question Number : 113 Question Id : 7520766473 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Let $f(x) = \begin{cases} A + 2x, & if\ x < 3 \\ 1 + x^2, & if\ x \geq 3 \end{cases}$

If the function $f(x)$ is continuous at $x = 3$, then the value of A is _____.

Options :

1. ✖ 6

2. ✖ 10

3. ✖ 16

4. ✔ 4

Question Number : 114 Question Id : 7520766474 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

If $u = \frac{xy}{x+y}$, then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ is equal to

Options :

1. ✖ 1

2. ✔ u

3. ✖ $-u$

4. ✖ 0

Question Number : 115 Question Id : 7520766475 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

Consider the differential equation $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = 0$ with the conditions $y(0) = 20$ and $y'(0) = 10$. Then, the value of $y(1)e^2 - 50e + 20 =$ _____.

Options :

1. ✖ 30

2. ✖ 0

3. ✖ -30

4. ✔ -10

Question Number : 116 Question Id : 7520766476 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

If the Laplace transform of a function $f(t)$ is given by $\frac{s+3}{(s+1)(s+2)}$, then the value of $f(\ln 2)$ is

Options :

1. ✖ 0

2. ✖ $\frac{3}{2}$

3. ✖ $\frac{1}{2}$

4. ✔ $\frac{3}{4}$

Question Number : 117 Question Id : 7520766477 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

For what value of the constant k, the function, $f(x)=\begin{cases} kxe^{-2x}, & x>0 \\ 0, & \text{otherwise} \end{cases}$,

is a probability density function?

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 118 Question Id : 7520766478 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The random variable X has a Binomial distribution Bin $(11, p)$.

If $P(X=8)=P(X=7)$, the value of p is

Options :

1. ✔ $\frac{2}{3}$

2. ✖ $\frac{1}{3}$

3. ✖ $\frac{3}{4}$

4. ✖ $\frac{1}{4}$

Question Number : 119 Question Id : 7520766479 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The value of a function $f(x)$ at four discrete points are given below

x	0	0.1	0.2	0.3
$f(x)$	0	20	30	60

Using Trapezoidal rule with step size of 0.1, the value of the integral

$\int_0^{0.3} f(x)dx$ is ___.

Options :

1. ✖ 6.5

2. ✖ 5.5

3. ✖ 7

4. ✔ 8

Question Number : 120 Question Id : 7520766480 Question Type : MCQ
Correct Marks : 1 Wrong Marks : 0

The Newton-Raphson method is used to find the root of the equation $f(x) \equiv x^2 - x - 1 = 0$. If the initial guess for the root is 1, then the estimate of the root after two iteration is _____.

Options :

1. ✖ 2

2. ✖ 1.80

3. ✔ 1.67

1.82

4. ✖