

Question Paper Preview

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 30th May 2018 Shift1
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Scratch Pad Required?:	No
Rough Sketch/Notepad Required?:	No
Protractor Required?:	No

Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 5113467801 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The Eigen values of the matrix $A = \begin{bmatrix} 3 & 1 \\ 1 & 3 \end{bmatrix}$ are

Options :

1. ✘ $-2, 4$
2. ✘ $-3, 3$
3. ✘ $3, 4$
4. ✓ $2, 4$

Question Number : 2 Question Id : 5113467802 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 1 & 3 & 4 \\ 1 & 4 & k \end{bmatrix}$ is Singular then the value of k is

Options :

1. ✓ 5

2. ✗ - 5

3. ✗ 6

4. ✗ 7

Question Number : 3 Question Id : 5113467803 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The value of $\lim_{x \rightarrow \infty} \frac{x - \sin x}{x + \cos x} =$

Options :

1. ✗ 0(zero)

2. ✓ 1

3. ✗ -1

4. ✗ ∞

Question Number : 4 Question Id : 5113467804 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $x = a(\theta - \sin \theta)$, $y = a(1 + \cos \theta)$, then $\frac{dy}{dx}$ at $\theta = \frac{\pi}{4}$ is

Options :

1. ✗ $1 + \sqrt{2}$

2. ✗ $1 - \sqrt{2}$

3. ✓ $-\sqrt{2} - 1$

4. ✗ $\sqrt{2} - 1$

Question Number : 5 Question Id : 5113467805 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $z = \log \frac{x^2 + y^2}{x + y}$, then $x \frac{\partial z}{\partial y} + y \frac{\partial z}{\partial x} =$

Options :

1. ✗ 0(zero)

2. ✓ 1

3. ✗ 2

4. ✗ 3

Question Number : 6 Question Id : 5113467806 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The solution of the differential equation $x \frac{dy}{dx} + 2y - x^2 = 0$ is

Options :

1. ✗ $x^2 y = x + c$

2. ✗ $x^2 y = \frac{x^3}{3} + c$

3. ✗ $x^3 y = x + c$

4. ✓ $x^2 y = \frac{x^4}{4} + c$

Question Number : 7 Question Id : 5113467807 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The particular solution of $(D^2 - 5D + 6)y = e^{4x}$ where $D = \frac{d}{dx}$ is

Options :

1. ✖ e^{4x}

2. ✖ $-e^{4x}$

3. ✔ $\frac{1}{2}e^{4x}$

4. ✖ $\frac{1}{4}e^{4x}$

Question Number : 8 Question Id : 5113467808 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $u = \tan^{-1} \frac{x}{y}$ then $\frac{\partial u}{\partial x} =$

Options :

1. ✔ $\frac{y}{x^2+y^2}$

2. ✖ $\frac{x}{x^2+y^2}$

3. ✖ $\frac{xy}{x^2+y^2}$

4. ✖ $\frac{1}{x^2+y^2}$

Question Number : 9 Question Id : 5113467809 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The series $\sum \frac{1}{n^p}$ converges when

Options :

1. ✖ 0(zero)

2. ✖ $p=1$

3. ✓ $p > 1$

4. ✗ $p \leq 1$

Question Number : 10 Question Id : 5113467810 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $L[f(t)]$ denotes the Laplace transform of $f(t)$, then $L[t^2 e^{-3t}]$ is

Options :

1. ✗ $\frac{2}{(s+3)^4}$

2. ✗ $\frac{2}{(s-3)^4}$

3. ✓ $\frac{2}{(s+2)^3}$

4. ✗ $\frac{2}{(s+3)^3}$

Display Number Panel:

Yes

Group All Questions:

No

Question Number : 11 Question Id : 5113467811 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a distinguishing characteristic of prokaryotic cells

Options :

1. ✗ they lack membrane enclosed organelles

2. ✗ they have cell walls containing peptidoglycan

3. ✓ their DNA is associated with histones

4. ✘ they have a single circular chromosome

Question Number : 12 Question Id : 5113467812 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following bacteria become spheroplasts, if the cell wall is digested away

Options :

1. ✘ Gram positive
2. ✔ Gram negative
3. ✘ Acid-fast
4. ✘ Bacterial spores

Question Number : 13 Question Id : 5113467813 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Peptidoglycan polymer contains

Options :

1. ✔ D & L - alanine, glutamic acid, diaminopimelic acid
2. ✘ L-alanine, glutamic acid, diaminopimelic acid
3. ✘ D - alanine, glutamic acid, diaminopimelic acid
4. ✘ asparagine, glutamic acid, diaminopimelic acid

Question Number : 14 Question Id : 5113467814 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

One of the products of the light reaction in photosynthesis is

Options :

1. ✔ NADPH
2. ✘ NADP
3. ✘ Glucose

4. ✘ Water

Question Number : 15 Question Id : 5113467815 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Allosteric site means

Options :

1. ✔ noncompetitive inhibitor binding site
2. ✘ competitive inhibitor binding site
3. ✘ cofactor binding site
4. ✘ coenzyme binding site

Question Number : 16 Question Id : 5113467816 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The following medium contains a constituent that causes an observable change in the medium when a particular biochemical reaction occurs.

Options :

1. ✘ Selective medium
2. ✔ Differential medium
3. ✘ Assay medium
4. ✘ Enrichment medium

Question Number : 17 Question Id : 5113467817 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The following is taking place in gene transfer method by transformation

Options :

1. ✘ virus involved
2. ✘ pilus involved

3. ✘ competence factor
4. ✔ uptake of naked DNA

Question Number : 18 Question Id : 5113467818 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Abazymes are

Options :

1. ✔ catalytic antibodies
2. ✘ immunoglobulins
3. ✘ similar to ribozymes
4. ✘ similar to ribosomes

Question Number : 19 Question Id : 5113467819 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The viral DNA within the bacterial chromosome is called

Options :

1. ✘ capsid
2. ✘ lytic phage
3. ✔ prophage
4. ✘ virion

Question Number : 20 Question Id : 5113467820 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Secondary structure of protein means

Options :

1. ✔ folding or coiling of amino acid chains into particular pattern
2. ✘ specific sequence of amino acids

3. ✖ irregular spherical shapes or fibrous thread like strands
4. ✖ association of several polypeptide chains

Question Number : 21 Question Id : 5113467821 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following statement is correct with respect to DNA structure

Options :

1. ✖ The number of hydrogen bonds between adenine and uracil is two
2. ✖ The number of hydrogen bonds between adenine and thymine is three
3. ✔ The number of hydrogen bonds between guanine and cytosine is three
4. ✖ The number of hydrogen bonds between guanine and cytosine is two

Question Number : 22 Question Id : 5113467822 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A nonsense mutation may result into

Options :

1. ✖ an abnormal elongation of a polypeptide
2. ✖ a large deletion within the reading frame of a gene
3. ✔ a premature termination of the synthesis of a polypeptide
4. ✖ modification of mRNA

Question Number : 23 Question Id : 5113467823 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is required for cutting of DNA

Options :

1. ✖ DNase
2. ✖ DNA ligase
3. ✖ DNA polymerase

4. restriction endonuclease

Question Number : 24 Question Id : 5113467824 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In protein synthesis, which of the following is a termination codon

Options :

1. UGA
2. UGG
3. UAU
4. UAC

Question Number : 25 Question Id : 5113467825 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A codon is

Options :

1. A group of 4 different bases in the mRNA
2. A group of 3 nucleotides that codes for one amino acid
3. one of the 20 amino acids in protein
4. the cells machinery for making proteins

Question Number : 26 Question Id : 5113467826 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the sequence for the codon for an amino acid is 3'- UCG – 5', what is the sequence of the anticodon found in the corresponding t RNA.

Options :

1. 3'- UCG – 5'
2. 5'- AGC – 3'
3. 5'- UCG – 3'

4. ✖ 3'- AGC – 5'

Question Number : 27 Question Id : 5113467827 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The type of restriction endonuclease used in rDNA technology is

Options :

1. ✖ type I
2. ✔ type II
3. ✖ type III
4. ✖ type IV

Question Number : 28 Question Id : 5113467828 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If a gene is switched off in the presence of a regulator

Options :

1. ✖ The gene is subjected to positive regulation
2. ✖ The gene is subject to induction
3. ✔ The gene is subject to negative regulation
4. ✖ The gene is subject to auto regulation

Question Number : 29 Question Id : 5113467829 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If IPTG binds to the repressor of the _____, it will cause _____

Options :

1. ✖ lac operon , repression
2. ✖ CRP operon, repression
3. ✔ lac operon, induction

4. ✖ CRP operon, induction

Question Number : 30 Question Id : 5113467830 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Gene expression in eukaryotic cells is most often regulated by controlling

Options :

1. ✖ Translational repression
2. ✔ Transcriptional initiation
3. ✖ Degeneration of mRNA
4. ✖ Inversion of DNA segments

Question Number : 31 Question Id : 5113467831 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

During transcription initiation, RNA polymerase recognizes and binds to a specific site called

Options :

1. ✖ initiator
2. ✔ promoter
3. ✖ activator
4. ✖ transcription factor

Question Number : 32 Question Id : 5113467832 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A gene library consists of

Options :

1. ✖ A list of the genes in a genome
2. ✖ Members of a gene super family
3. ✔ A collection of cloned DNA fragments
4. ✖ Purified mRNA

Question Number : 33 Question Id : 5113467833 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

DNA is replicated by a

Options :

1. ✘ Conservative mechanism
2. ✔ Semi conservative mechanism
3. ✘ Tandem repetitive mechanism
4. ✘ diploid mechanism

Question Number : 34 Question Id : 5113467834 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The cell cultures for the production of interferon is commonly infected with the following virus

Options :

1. ✘ Polio virus
2. ✘ Corona virus
3. ✔ Sendai virus
4. ✘ Small pox virus

Question Number : 35 Question Id : 5113467835 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In SDS polyacrylamide gel electrophoresis, what for SDS is used?

Options :

1. ✘ to abolish hydrogen bonding
2. ✘ to break disulphide bonds
3. ✘ to cleave protein molecules
4. ✔ to denature protein molecules

Question Number : 36 Question Id : 5113467836 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

During Kreb's cycle number of CO₂ molecules released is

Options :

1. ✖ 1
2. ✔ 2
3. ✖ 3
4. ✖ 0

Question Number : 37 Question Id : 5113467837 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The first reactant in Kreb's cycle is

Options :

1. ✖ citric acid
2. ✖ isocitricacid
3. ✖ malic acid
4. ✔ oxaloacetic acid

Question Number : 38 Question Id : 5113467838 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following plant cell will show totipotency?

Options :

1. ✖ pith
2. ✖ sieve tube
3. ✔ meristem
4. ✖ xylem vessels

Question Number : 39 Question Id : 5113467839 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

capnophiles means

Options :

1. ✘ organisms need small amount of oxygen
2. ✘ carbon monoxide loving organisms
3. ✘ organisms need large amount of oxygen
4. ✔ carbon dioxide loving organisms

Question Number : 40 Question Id : 5113467840 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is best suited method for production of virus free plants?

Options :

1. ✔ Meristem culture
2. ✘ Embryo culture
3. ✘ Ovule culture
4. ✘ Anther culture

Question Number : 41 Question Id : 5113467841 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The following techniques used to obtain information on the folded structure of proteins except

Options :

1. ✘ Circular dichroism
2. ✘ FTIR spectroscopy
3. ✔ Western blotting
4. ✘ Fluorescence spectroscopy

Question Number : 42 Question Id : 5113467842 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The BLAST program used for comparison of

Options :

1. ✘ protein 3D structures
2. ✔ nucleotide sequences
3. ✘ biological activities
4. ✘ amino acid sequences

Question Number : 43 Question Id : 5113467843 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

auxin is synthesized in which part of the plant

Options :

1. ✔ apical
2. ✘ nodal
3. ✘ intermodal
4. ✘ axillary

Question Number : 44 Question Id : 5113467844 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

All are plant derived alkaloids except

Options :

1. ✘ codeine
2. ✘ quinine
3. ✔ menthol
4. ✘ nicotine

Question Number : 45 Question Id : 5113467845 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which breeding method uses a chemical to strip the cell wall of plant cells of two sexually incompatible species?

Options :

1. ✘ Mass selection
2. ✔ Protoplast fusion
3. ✘ Transformation
4. ✘ Transpiration

Question Number : 46 Question Id : 5113467846 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Agrobacterium based gene transfer is efficient

Options :

1. ✔ only with dicots
2. ✘ only with monocots
3. ✘ with both monocots and dicots
4. ✘ with majority monocots and few dicots

Question Number : 47 Question Id : 5113467847 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Hairy root cultures for secondary metabolite production are induced by transforming plant cells with

Options :

1. ✘ *Bacillus thuringiensis*
2. ✘ virus
3. ✘ *Agrobacterium tumefaciens*
4. ✔ *Agrobacterium rhizogenes*

Question Number : 48 Question Id : 5113467848 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The most common form of gene expression regulation in both bacteria and eukaryotes is

Options :

1. ✘ translational control
2. ✔ transcriptional control
3. ✘ post-transcriptional control
4. ✘ post-translational control

Question Number : 49 Question Id : 5113467849 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which is not part of the lac operon?

Options :

1. ✘ repressor
2. ✔ activator protein
3. ✘ operator
4. ✘ promoter

Question Number : 50 Question Id : 5113467850 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The commonest indicator in animal cell culture medium is

Options :

1. ✘ rosebengal
2. ✔ phenol red
3. ✘ crimson orange
4. ✘ bromocresol purple

Question Number : 51 Question Id : 5113467851 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The world's first transgenic primate is known as

Options :

1. ✘ UTDi
2. ✘ GENi
3. ✘ CLONi
4. ✔ ANDi

Question Number : 52 Question Id : 5113467852 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Gene knock-out means _____ of specific gene

Options :

1. ✔ inactivating
2. ✘ removal
3. ✘ purification
4. ✘ multiplication

Question Number : 53 Question Id : 5113467853 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The suffix "S" in ribosome unit indicates

Options :

1. ✘ solubility
2. ✘ size
3. ✘ surface area
4. ✔ sedimentation coefficient

Question Number : 54 Question Id : 5113467854 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The total number of cells in a culture is counted using the trypan blue exclusion assay and is found to be 2.7×10^6 cells/ml. The culture is diluted 1:27 and then 100 μ l seeded per well into a 96 well plate.

What is the final cell density per well?

Options :

1. ✘ 1×10^5
2. ✔ 1×10^4
3. ✘ 2.7×10^5
4. ✘ 2.7×10^4

Question Number : 55 Question Id : 5113467855 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The first vaccine developed from animal cellculture was

Options :

1. ✘ Hepatitis B
2. ✘ Influenza
3. ✔ Polio
4. ✘ Small pox

Question Number : 56 Question Id : 5113467856 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

During the growth of animal cells in culture, it is noticed that the cells do not look very healthy. After an investigation, it is found that there is a lot of lactic acid in the culture fluid. What is probably wrong with this culture?

Options :

1. ✘ Ethyl alcohol is being produced in excess
2. ✘ The cells have too much oxygen
3. ✔ The cells do not have enough oxygen

4. ✘ Glycolysis is being inhibited

Question Number : 57 Question Id : 5113467857 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Cells which have undergone transformation frequently become

Options :

1. ✘ stable
2. ✘ unstable
3. ✘ anchorage dependent
4. ✔ anchorage independent

Question Number : 58 Question Id : 5113467858 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In animal cell medium, the following are the nutritional medium supplements except

Options :

1. ✘ selenium
2. ✔ polyglycol
3. ✘ ethanalamine
4. ✘ insulin

Question Number : 59 Question Id : 5113467859 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The newly formed mRNA after leaving from the nucleus in eukaryotic transformation process contains

Options :

1. ✘ introns
2. ✔ exons
3. ✘ introns and exons
4. ✘ introns, exons and ribosomes

Question Number : 60 Question Id : 5113467860 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

DNA synthesis takes place in which phase of the cell cycle

Options :

1. ✘ G1 phase
2. ✘ G2 phase
3. ✔ S phase
4. ✘ prophase

Question Number : 61 Question Id : 5113467861 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is a protein sequence database

Options :

1. ✘ GenBank
2. ✘ EMBL
3. ✔ PIR
4. ✘ DDBJ

Question Number : 62 Question Id : 5113467862 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

BLAST X program is used to

Options :

1. ✘ translate protein sequence
2. ✘ translate DNA database
3. ✔ translate input sequence
4. ✘ transcribe protein information

Question Number : 63 Question Id : 5113467863 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Proteomics research can be categorized as

Options :

1. ✓ structural proteomics and functional proteomics
2. ✗ structural, functional and comparative proteomics
3. ✗ functional and comparative proteomics
4. ✗ structural and comparative proteomics

Question Number : 64 Question Id : 5113467864 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Clustal W

Options :

1. ✓ multiple sequence alignment
2. ✗ data retrieving tool
3. ✗ protein secondary structure predicting tool
4. ✗ nucleic acid sequence analysis tool

Question Number : 65 Question Id : 5113467865 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

BLAT is used to find

Options :

1. ✗ regions of higher differences within genomic assemblies
2. ✓ regions of higher identity within genomic assemblies
3. ✗ folds in a RNA sequence
4. ✗ secondary structures in a given protein

Question Number : 66 Question Id : 5113467866 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which is the best annotated database

Options :

1. ✖ Genbank
2. ✖ PDB
3. ✖ Prodom
4. ✔ SwissProt

Question Number : 67 Question Id : 5113467867 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In molecular dynamics simulation, the dependence is on

Options :

1. ✖ position only
2. ✖ momentum only
3. ✔ both position and momentum
4. ✖ either position or momentum

Question Number : 68 Question Id : 5113467868 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Quantitative Structure Activity Relationship (QSAR) is used for

Options :

1. ✖ protein modelling
2. ✔ drug design
3. ✖ aligning two sequences
4. ✖ molecular dynamics simulation

Question Number : 69 Question Id : 5113467869 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following methods used to predict 3D structures of protein when it has < 20% sequence similarity with available templates?

Options :

1. ✘ homology modelling
2. ✘ dynamic programming
3. ✔ fold recognition
4. ✘ progressive protein programming

Question Number : 70 Question Id : 5113467870 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Ramachandran map of a protein representation allows you to identify

Options :

1. ✘ the most stable structure
2. ✘ the tertiary allowed structure
3. ✔ the sterically disallowed conformations
4. ✘ the secondary structure elements

Question Number : 71 Question Id : 5113467871 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

NCBI was established in 1988 as a division of the

Options :

1. ✔ National Library of Medicine
2. ✘ National Institute of Health
3. ✘ ExpASy
4. ✘ European Bioinformatics Institute

Question Number : 72 Question Id : 5113467872 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

All are sequence alignment tools except

Options :

1. ✔ Rasmol

2. ✖ BLAST
3. ✖ FASTA
4. ✖ ClustalW

Question Number : 73 Question Id : 5113467873 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

'Containment' in the fermentation industry means

Options :

1. ✖ Protection against contamination in a fermenter
2. ✖ Protection for the operating person in the area
3. ✔ Prevention of escape of viable cells from a fermenter
4. ✖ Container used for removal of sample

Question Number : 74 Question Id : 5113467874 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The X_{90} value for a filtration system is

Options :

1. ✖ the time required to reduce the microbial population by 90%
2. ✖ the time required to traverse survival curve by one log cycle
3. ✔ the depth of the filter required to reduce the population by 90%
4. ✖ the diameter of the filter required to reduce the population by 90%

Question Number : 75 Question Id : 5113467875 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The following methods are used for cell disruption except

Options :

1. ✔ mixing

2. ✖ homogenization
3. ✖ enzymatic digestion
4. ✖ ultrasonification

Question Number : 76 Question Id : 5113467876 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For scaling up of a bioreactor, the following parameters are varying except

Options :

1. ✖ air flow rate
2. ✖ diameter of the impeller
3. ✔ agitator speed
4. ✖ volumetric mass transfer coefficient

Question Number : 77 Question Id : 5113467877 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In a Lineweaver – Burk plot, the intercept on $1/v$ axis is increased and the intercept on $1/s$ axis is unchanged by the addition of the inhibitor, belongs to the following type of inhibition

Options :

1. ✖ Competitive
2. ✔ Noncompetitive
3. ✖ Partially noncompetitive
4. ✖ Mixed

Question Number : 78 Question Id : 5113467878 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The most widely used method for primary stock culture preservation is

Options :

1. ✖ by keeping in the refrigerator at $2^{\circ} - 8^{\circ} \text{C}$

2. ✘ on agar slant with an overlay of sterile mineral oil
3. ✘ as sterile soil stocks
4. ✔ by freeze-drying method

Question Number : 79 Question Id : 5113467879 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An encapsulated bacterium can be virulent because the capsule

Options :

1. ✘ is an endotoxin
2. ✘ destroys host tissues
3. ✘ has no effect, as capsules do not contribute to virulence
4. ✔ resists phagocytosis

Question Number : 80 Question Id : 5113467880 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a portal of entry for pathogens?

Options :

1. ✘ skin
2. ✘ parenteral route
3. ✔ blood
4. ✘ mucous membranes of the gastrointestinal tract.

Question Number : 81 Question Id : 5113467881 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Cytotoxic autoimmunity differs from immune complex autoimmunity in that cytotoxic reaction

Options :

1. ✘ involve antibodies
2. ✔ do not involve complement

- 3. ✖ are caused by T cells
- 4. ✖ do not involve IgE antibodies

Question Number : 82 Question Id : 5113467882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Fusion between a plasma cell and a tumor cell creates a

Options :

- 1. ✖ Myeloma
- 2. ✖ Natural killer cell
- 3. ✖ Lymphoblast
- 4. ✔ Hybridoma

Question Number : 83 Question Id : 5113467883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A molecule that reacts with specific antibody but it is not immunogenic by itself is called

Options :

- 1. ✖ carrier
- 2. ✖ antigen
- 3. ✔ hapten
- 4. ✖ immunogen

Question Number : 84 Question Id : 5113467884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The antibody that is present in secretions like saliva, tears, colusturm

Options :

- 1. ✔ Ig A
- 2. ✖ Ig D
- 3. ✖ Ig E

4. ✘ Ig M

Question Number : 85 Question Id : 5113467885 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following IgG is targeted against polysaccharides of encapsulated bacteria

Options :

1. ✘ IgG1

2. ✔ IgG2

3. ✘ IgG3

4. ✘ IgG4

Question Number : 86 Question Id : 5113467886 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Pus formed at the site of infection is largely composed of dead

Options :

1. ✘ macrophages

2. ✘ eosinophils

3. ✔ neutrophils

4. ✘ basophils

Question Number : 87 Question Id : 5113467887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Where does a mature T cell encounter antigen for the first time?

Options :

1. ✘ freely in primary lymphoid organ

2. ✘ freely in secondary lymphoid organ

3. ✘ on an antigen presenting cell in a primary lymphoid organ

4. ✔ on an antigen presenting cell in a secondary lymphoid organ

Question Number : 88 Question Id : 5113467888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Regarding mucosa associated lymphoid tissue, which of the following is secreted by the B-cells across the epithelium.

Options :

1. IgA
2. IgD
3. IgG
4. IgM

Question Number : 89 Question Id : 5113467889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is **not** involved in antigen-antibody reactions?

Options :

1. electrostatic interactions between charged side-chains
2. hydrophilic interactions
3. van der Waals forces
4. peptide bonds

Question Number : 90 Question Id : 5113467890 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following differentiates an antigen from immunogen?

Options :

1. an antigen is a foreign molecule
2. an antigen can cause production of antibodies
3. an antigen does not always elicit an immuneresponse
4. antigens are capable of being bound by immunological receptors

Question Number : 91 Question Id : 5113467891 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the function of major histocompatibility complex (MHC) molecules?

Options :

1. ✘ present sugars to T cells
2. ✔ present peptides to T cells
3. ✘ lyse foreign antigens
4. ✘ create holes in the membranes of bacteria

Question Number : 92 Question Id : 5113467892 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the optimal temperature for Taq polymerase to activate in PCR?

Options :

1. ✔ 70°C
2. ✘ 50°C
3. ✘ 37°C
4. ✘ 20°C

Question Number : 93 Question Id : 5113467893 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

RFLP analysis is a technique that

Options :

1. ✘ is used to detect genetic variation at protein level
2. ✘ measures the transfer frequency of genes during conjugation
3. ✔ uses hybridization to detect specific DNA restriction fragments in genomic DNA
4. ✘ used to determine whether a gene is transcribed in specific cells

Question Number : 94 Question Id : 5113467894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following statement is correct with respect to genomic DNA and cDNA.

Options :

1. ✘ genomic DNA has only exons, but cDNA has both exons and introns
2. ✔ c DNA has only exons, but genomic DNA has both exons and introns
3. ✘ genomic DNA has only introns, and cDNA has only exons
4. ✘ genomic DNA and cDNA have both exons and introns

Question Number : 95 Question Id : 5113467895 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

DNA finger printing was developed by

Options :

1. ✘ Francis Crick
2. ✔ Alec Jeffrey
3. ✘ James Watson
4. ✘ Khorana

Question Number : 96 Question Id : 5113467896 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following technique is suited for separation of large DNA fragments?

Options :

1. ✘ agarose gel electrophoresis
2. ✘ polyacrylamide gel electrophoresis
3. ✘ SDS polyacrylamide gel electrophoresis
4. ✔ pulse field gel electrophoresis

Question Number : 97 Question Id : 5113467897 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Retrotransposons differ from DNA transposons in

Options :

1. ✖ The ability to transpose
2. ✖ Having no RNA intermediate
3. ✔ Having an RNA intermediate
4. ✖ Inability to show transposition

Question Number : 98 Question Id : 5113467898 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which deficiency of the immune system was the first disorder, researchers treated with gene therapy?

Options :

1. ✔ adenosine deaminase deficiency (ADA)
2. ✖ ornithine transcarbamylase (OTC)
3. ✖ duchenne muscular dystrophy (DMD)
4. ✖ sickle cell anaemia (SCA)

Question Number : 99 Question Id : 5113467899 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following approach in gene therapy is disagreeable to the public?

Options :

1. ✖ somatic therapy
2. ✖ *ex vivo* therapy
3. ✖ antisense therapy
4. ✔ germ line therapy

Question Number : 100 Question Id : 5113467900 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Formation of what type of chemical bond is catalyzed by DNA ligase?

Options :

1. ✘ glycosidic
2. ✘ hydrogen
3. ✔ phosphoester
4. ✘ ester

Question Number : 101 Question Id : 5113467901 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Primary lymphoid organs include

Options :

1. ✘ thymus and spleen
2. ✔ thymus and bone marrow
3. ✘ thymus, bone marrow and spleen
4. ✘ thymus, bone marrow, spleen and lymph nodes

Question Number : 102 Question Id : 5113467902 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Immunoaffinity chromatography can be used in biochemical applications to

Options :

1. ✘ break down antibody structure
2. ✘ break down antigen and analyze quantitatively
3. ✔ purify protein antigen
4. ✘ identify the protein

Question Number : 103 Question Id : 5113467903 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Match the following columns X with Y

X	Y
a) replication	p) Okazaki fragments
b) translation	q) r RNA
c) transcription	r) RNA polymerase binds to one strand of DNA
d) reverse transcription	s) retrovirus enzyme

Options :

1. ✘ a- q, b - p, c - s, d - r
2. ✔ a- p, b - q, c - r, d - s
3. ✘ a- r, b - s, c - p, d - q
4. ✘ a- s, b - r, c - q, d - p

Question Number : 104 Question Id : 5113467904 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

During meiosis chiasmata are observed at

Options :

1. ✘ leptotene
2. ✘ diakinesis
3. ✘ diplotene
4. ✔ pachytene

Question Number : 105 Question Id : 5113467905 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

All of the following are proteins within the core nucleosome particle except

Options :

1. ✔ H1

2. ✖ H2A
3. ✖ H2B
4. ✖ H3

Question Number : 106 Question Id : 5113467906 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

All of the following statements are true about damage by UV light to DNA in living cell except

Options :

1. ✖ the most cells can synthesize proteins capable of repairing UV damage
2. ✖ covalent bonds are formed that join neighboring pyrimidines
3. ✔ neighboring phosphodiester bonds are cleaved
4. ✖ the damage blocks normal DNA replication

Question Number : 107 Question Id : 5113467907 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

When enzyme activity is calculated on the basis of reactor volume, the following bioreactor is preferred

Options :

1. ✖ stirred tank bioreactor
2. ✖ fluidized bed bioreactor
3. ✔ packed bed bioreactor
4. ✖ airlift bioreactor

Question Number : 108 Question Id : 5113467908 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Diauxic growth means, in the growth curve

Options :

1. ✖ no lag phase
2. ✔ multiple lag phases

3. ✖ two types of microorganisms are growing
4. ✖ directly starts from exponential phase

Question Number : 109 Question Id : 5113467909 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In citric acid recovery process, from the harvested fermentation broth, addition of sulphuric acid is

Options :

1. ✖ To reduce the pH
2. ✖ To increase the yield of the citric acid
3. ✖ As stabilizing agent
4. ✔ To remove the calcium as calcium sulphate

Question Number : 110 Question Id : 5113467910 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Antisense technology is

Options :

1. ✔ selectively blocks expression of a gene
2. ✖ alters or transfers cells
3. ✖ combines organelles and cells
4. ✖ combines genetic material from different species

Question Number : 111 Question Id : 5113467911 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

During the biosynthesis of urea in urea cycle, the two nitrogen atoms derived from

Options :

1. ✖ both are derived from arginine
2. ✖ two free ammonium groups

3. ✘ one from citrulline and one from glutamate
4. ✔ free ammonium group and aspartate

Question Number : 112 Question Id : 5113467912 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In order for biotechnology methods to produce human proteins from bacterial cells in culture, all the following must occur EXCEPT

Options :

1. ✔ Human DNA must be removed from the nucleus
2. ✘ mRNA must be isolated
3. ✘ a cDNA copy must be made
4. ✘ polymerase makes the DNA double stranded

Question Number : 113 Question Id : 5113467913 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

When a restriction enzyme makes a staggered cut across a strand of DNA, this is known as

Options :

1. ✘ blunt end
2. ✔ sticky end
3. ✘ genetic finger print
4. ✘ ligase

Question Number : 114 Question Id : 5113467914 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The macrolide antibiotic producing microorganism is

Options :

1. ✘ *Streptomyces griseus*
2. ✔ *Streptomyces erythreus*

3. ✖ *Streptomyces fradiae*

4. ✖ *Streptomyces humidus*

Question Number : 115 Question Id : 5113467915 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An extracellular polysaccharide produced by *Leuconostoc mesenteroides* is

Options :

1. ✖ Xanthan

2. ✖ Pullulan

3. ✖ Polylactate

4. ✔ Dextran

Question Number : 116 Question Id : 5113467916 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A humanized antibody is one in which the

Options :

1. ✖ Heavy and light chains are from human

2. ✖ Heavy chain is from human and light chain is from mouse

3. ✔ CDRs are from mouse, and the rest is from human

4. ✖ Light chain is from human and heavy chain is from mouse

Question Number : 117 Question Id : 5113467917 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Synteny refers to

Options :

1. ✖ Local conservation of gene order

2. ✖ A tree representation of related sequences

3. ✘ The extent of similarity between two sequences
4. ✔ Gene duplication from a common ancestor

Question Number : 118 Question Id : 5113467918 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In a batch culture of *Streptomyces griseus*, the maximum streptomycin synthesis occurs during the

Options :

1. ✘ lag phase
2. ✘ exponential phase
3. ✔ stationary phase
4. ✘ death phase

Question Number : 119 Question Id : 5113467919 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is employed for the repeated use of enzymes in bioprocesses?

Options :

1. ✔ immobilization
2. ✘ polymerization
3. ✘ ligation
4. ✘ isomerization

Question Number : 120 Question Id : 5113467920 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Cholera toxin increases cAMP levels by

Options :

1. ✘ modifying Gi protein
2. ✔ modifying Gs protein

3. ✖ binding to adenylate cyclase
4. ✖ activating cAMP phosphodiesterase