

Question Paper Preview**Notations :**

- Options shown in green color and with ✓ icon are correct.
- 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 :

- ✗ - 2, 4
- ✗ - 3, 3
- ✗ 3, 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 $x \frac{\partial z}{\partial y} + y \frac{\partial z}{\partial y} =$

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 tRNA.

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. ✖ ethanolamine
- 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. ✗ exponenetial 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

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