# 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.

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|---|---|
| **Question Paper Name :** | Bio Technology 29th May 2023 Shift 1 |
| **Duration :** | 120 |
| **Total Marks :** | 120 |
| **Display Marks:** | No |
| **Share Answer Key With Delivery Engine :** | Yes |
| **Calculator :** | None |
| **Magnifying Glass Required? :** | No |
| **Ruler Required? :** | No |
| **Eraser Required? :** | No |
| **Scratch Pad Required? :** | No |
| **Rough Sketch/Notepad Required? :** | No |
| **Protractor Required? :** | No |
| **Show Watermark on Console? :** | Yes |
| **Highlighter :** | No |
| **Auto Save on Console?** | Yes |
| **Change Font Color :** | No |
| **Change Background Color :** | No |
| **Change Theme :** | No |
| **Help Button :** | No |
| **Show Reports :** | No |

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|---|---|
| **Show Progress Bar : Is this Group for Examiner? :** | No No<br>Cant View |
| **Examiner permission : Show Progress Bar? :** | No |

# Bio Technology

| | |
|---|---|
| **Section Id :** | 78773221 |
| **Section Number :** | 1 |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 120 120 |
| **Section Marks :** | |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |
| **Maximum Instruction Time :** | 0 |
| **Is Section Default? :** | null |

**Question Number : 1 Question Id : 7877322401 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following method is most useful for the enzymatic amplification of specific gene segment of DNA.

**Options :**

1. ✖ DNA Hybridization

2. ✖ Nucleotide sequencing

3. ✔ Polymerase chain reaction

4. ✖ Reverse transcription

**Question Number : 2 Question Id : 7877322402 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Prokaryotic cells are more resistant to osmotic shock than eukaryotic cells because

**Options :**

1. ✔ Their cell wall is composed of peptidoglycan

2. ✖ They are selectively permeable

3. ✖ They contain osmoregulation porins

4. ✖ They block water molecules from entering the cell

**Question Number : 3 Question Id : 7877322403 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Fixation of atmospheric nitrogen is by means of

**Options :**

1. ✖ Biological process

2. ✖ Lightening

3. ✖ Ultraviolet light

4. ✔ All of the above

**Question Number : 4 Question Id : 7877322404 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following is most effective chemical mutagen

**Options :**

1. ✖ Methane

2. ✖ Guanine

3. ✔ N-ethyl-N-nitrosourea

4. ✖ Caffeine

**Question Number : 5 Question Id : 7877322405 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Microbes capable of growing either in presence or absence of oxygen

**Options :**

1. ✖ Aerobic

2. ✖ Anaerobic

3. ✖ Obligate aerobic

4. ✔ Facultative anaerobe

**Question Number : 6 Question Id : 7877322406 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

All the statements are true regarding RFLP and RAPD except the following one

**Options :**

1. ✖ RAPD is a quick method compared to RFLP

2. ✖ RFLP is more reliable than RAPD

3. ✔ Species specific primers are required for RAPD

4. ✖ Radioactive probes are required for RAPD

**Question Number : 7 Question Id : 7877322407 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Bacteria which can grow at moderately high hydrostatic pressure

**Options :**

1. ✔ Barophiles

2. ✖ Psychrophiles

3. ✖ Thermophiles

4. ✖ Mesophiles

**Question Number : 8 Question Id : 7877322408 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

How many bases does the sequence which identifies the restriction enzymes contain

**Options :**

1. ✖ 1

2. ✖ 4

3. ✔ 6

4. ✖ 12

**Question Number : 9 Question Id : 7877322409 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

A cloning vector is a carrier DNA molecule to which the human DNA fragment is attached in DNA transfer, the vector used from smallest to largest is

**Options :**

1. ✖ Bacteriophage > Plasmids > BAC (Bacterial artificial chromosome) > Cosmids

2. ✖ Cosmids > Plasmids > Bacteriophage > BAC (Bacterial artificial chromosome).

3. ✔ Plasmids > Bacteriophage > Cosmids > BAC (Bacterial artificial chromosome).

4. ✖ BAC (Bacterial artificial chromosome) > Cosmids > Plasmids > Bacteriophage.

**Question Number : 10 Question Id : 7877322410 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The action of ultraviolet radiation on DNA to induce mutation is the

**Options :**

1. ✔ Formation of thymine dimer

2. ✖ Methylation of base pairs

3. ✖ Deletion of base pairs

4. ✖ Addition of base pairs

**Question Number : 11 Question Id : 7877322411 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

How dark reaction differs from light reaction

**Options :**

1. ✔ Carbohydrates are formed

2. ✖ ATP is formed

3. ✖ Carbon dioxide is produced

4. ✖ NADPH is produced

**Question Number : 12 Question Id : 7877322412 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Total number of ATPs produced during electron transport chain

**Options :**

1. ✖ 2 ATPs

2. ✖ 10 ATPs

3. ✖ 20 ATPs

4. ✔ 32 ATPs

**Question Number : 13 Question Id : 7877322413 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Interaction of more than one polypeptide in to protein complex influenced by "R" group.

**Options :**

1. ✖ Primary structure

2. ✖ Secondary structure

3. ✖ Tertiary structure

4. ✔ Quaternary structure

**Question Number : 14 Question Id : 7877322414 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Phospholipids are

**Options :**

1. ✖ Simple lipids

2. ✔ Complex lipids

3. ✖ Derived lipids

4. ✖ Miscellaneous lipids

**Question Number : 15 Question Id : 7877322415 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which one of the following is not among the six internationally accepted classes of enzymes

**Options :**

1. ✖ Hydrolases

2. ✖ Transferases

3. ✖ Ligases

4. ✔ Polymerase

**Question Number : 16 Question Id : 7877322416 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

To calculate the turnover number of an enzyme, you need to know

**Options :**

1. ✖ Enzyme concentration

2. ✖ Initial velocity of catalysed reaction at [S] >> Km

3. ✖ Km for the substrate

4. ✔ Both Enzyme concentration and Initial velocity of catalysed reaction at [S] >> Km

**Question Number : 17 Question Id : 7877322417 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Phases observed in Mitosis are as follows

**Options :**

1. ✖ Prophase > Anaphase > Telophase > Metaphase

2. ✔ Prophase > Metaphase > Anaphase > Telophase

3. ✖ Metaphase > Telophase > Prophase > Anaphase

4. ✖ Telophase > Anaphase > Metaphase > Prophase

**Question Number : 18 Question Id : 7877322418 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The toxin of *Vibrio cholerae* causes profuse diarrhea because it

**Options :**

1. ✔ Modifies a G protein involved in regulating salt and water secretion.

2. ✖ Modifies calmodulin and activates a cascade of protein kinases.

3. ✖ Binds with adenylyl cyclase and triggers the formation of cAMP.

4. ✖ Signals inositol trisphosphate to become a second messenger for the release of calcium.

**Question Number : 19 Question Id : 7877322419 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

When a cell releases a signal molecule into the environment and a number of cells in the immediate vicinity responds, this type of signalling is

**Options :**

1. ✖ Autocrine signalling.

2. ✔ Paracrine signalling.

3. ✖ Endocrine signalling.

4. ✖ Synaptic signalling

**Question Number : 20 Question Id : 7877322420 Display Question Number : Yes Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Oxygenic photosynthesis uses

**Options :**

1. ✖ Photosystem I

2. ✖ Photosystem II

3. ✔ Photosystem I and II

4. ✖ Photosystem III

**Question Number : 21 Question Id : 7877322421 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The nucleotide sequence data base (Gen bank) is maintained by

**Options :**

1. ✖ DNA data base of Japan (DDBJ)

2. ✖ European Molecular Biology Laboratory (EMBL)

3. ✔ National Center for Biotechnology Information (NCBI)

4. ✖ Brookhaven Laboratory

**Question Number : 22 Question Id : 7877322422 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the statements regarding gram staining is wrong

**Options :**

1. ✔ *Mycobacterium tuberculosis* stains blue because of the thick lipid layer

2. ✖ *Streptococcus pyogenes* stains blue because of a thick peptidoglycan layer

3. ✖ *Escherichia coli* stains pink because of a thin peptidoglycan layer

4. ✖ *Mycoplasma pneumoniae* is not visible in the Gram's stain because it has no cell wall

**Question Number : 23 Question Id : 7877322423 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The prokaryotic cell membrane

**Options :**

1. ✖ Contains metabolic enzymes

2. ✖ Is selectively permeable

3. ✖ Regulates the entry and exit of materials

4. ✔ Contains proteins and phospholipids

**Question Number : 24 Question Id : 7877322424 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following tools is used to analyse your protein sequence motifs

**Options :**

1. ✖ PROSPECT

2. ✔ COPIA

3. ✖ BLAST

4. ✖ Pattern hunter

**Question Number : 25 Question Id : 7877322425 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which plasmid contains genes coding for the degradation of Toluene.

**Options :**

1. ✖ Ti

2. ✖ Ri

3. ✔ Tol

4. ✖ ColE1

**Question Number : 26 Question Id : 7877322426 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Liposome mediated gene transfer is more suitable for

**Options :**

1. ✖ Prokaryotic cell

2. ✖ Yeast cell

3. ✖ Plant cell

4. ✔ Animal cell

**Question Number : 27 Question Id : 7877322427 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Technique for transferring foreign DNA into a host organisms DNA is known as

**Options :**

1. ✖ PCR Technique

2. ✔ Recombinant DNA Technology

3. ✖ Gene cloning Technique

4. ✖ Blotting Technique

**Question Number : 28 Question Id : 7877322428 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The alignment method suitable for finding out conserved patterns in DNA or protein sequence

**Options :**

1. ✔ Multiple sequence alignment

2. ✖ Pairwise alignment

3. ✖ Global alignment

4. ✖ Local alignment

**Question Number : 29 Question Id : 7877322429 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Bacterial transformation was discovered by

**Options :**

1. ✔ Ederberg and Tatum

2. ✖ Beadle and Tatum

3. ✖ Griffith

4. ✖ Mendal

**Question Number : 30 Question Id : 7877322430 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The resting potential is mainly determined by

**Options :**

1. ✔ $K^+$ gradient

2. ✖ $Cl^-$ gradient

3. ✖ $Ca^{2+}$ gradient

4. ✖ $Na^+$ gradient

**Question Number : 31 Question Id : 7877322431 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

The term cistron, refers to

**Options :**

1. ✖ region in tRNA molecule

2. ✖ codon

3. ✔ region of the DNA that codes for a single polypeptide chain

4. ✖ ribosomal protein

**Question Number : 32 Question Id : 7877322432 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

BLOSUM matrices are used for

**Options :**

1. ✖ Multiple sequence alignment

2. ✔ Pairwise sequence alignment

3. ✖ Phylogenetic alignment

4. ✖ Both Multiple sequence alignment and Phylogenetic alignment

**Question Number : 33 Question Id : 7877322433 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

*Cri-du-chat* syndrome is caused due to deletion in segment of which chromosome

**Options :**

1. ✖ 3

2. ✖ 7

3. ✔ 5

4. ✖ 8

**Question Number : 34 Question Id : 7877322434 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which one of the following inhibits the activity of RNA Polymerase II

**Options :**

1. ✖ Rifampicin

2. ✖ Aphidicolin

3. ✔ Alpha amanitin

4. ✖ Actinomycin D

**Question Number : 35 Question Id : 7877322435 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Enzyme complex involved in alcoholic fermentation is

**Options :**

1. ✔ Zymase

2. ✖ Invertase

3. ✖ Lipase

4. ✖ Amylase

**Question Number : 36 Question Id : 7877322436 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The A260/A280 ratio of a double-stranded DNA sample can be used to assess its purity.

The value for the pure DNA is

**Options :**

1. ✖ 3

2. ✔ 1.8

3. ✖ between 2 and 3

4. ✖ below 1.5

**Question Number : 37 Question Id : 7877322437 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following is a protein structure database

**Options :**

1. ✖ Gene bank

2. ✖ Swiss-Prot

3. ✖ DDBJ

4. ✔ PDB

**Question Number : 38 Question Id : 7877322438 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following processes does not occur in prokaryotes?

**Options :**

1. ✖ Transcription

2. ✔ Splicing

3. ✖ Translation

4. ✖ Replication

**Question Number : 39 Question Id : 7877322439 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

How many RNA polymerases are present in a bacterial system

**Options :**

1. ✖ 4

2. ✖ 2

3. ✔ 1

4. ✖ 3

**Question Number : 40 Question Id : 7877322440 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Two genes which undergo independent assortment with recombination frequency equal to 50% are

A. Present on nonhomologous chromosomes

B. Located far apart in a single chromosome

**Options :**

1. ✖ Only A is correct

2. ✖ Only B is correct

3. ✔ Both A and B are correct

4. ✖ Neither A nor B is correct

**Question Number : 41 Question Id : 7877322441 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

A cross between red and white snapdragons plants resulted in pink color flowers due to

**Options :**

1. ✖ Law of dominance

2. ✖ Law of Independent assortment

3. ✖ Law of segregation

4. ✔ Incomplete dominance

**Question Number : 42 Question Id : 7877322442 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Pokyness in Neurospora is caused due to

**Options :**

1. ✖ Complementation

2. ✖ Epistasis

3. ✖ Mutation

4. ✔ Extrachromosomal inheritance

**Question Number : 43 Question Id : 7877322443 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following is a chemical nucleotide sequencing method

**Options :**

1. ✖ Sanger method

2. ✔ Maxam-Gilbert method

3. ✖ Edmans method

4. ✖ Automated sequencing method

**Question Number : 44 Question Id : 7877322444 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Arrange DNA finger printing procedure in the correct order

**Options :**

1. ✖ Restriction digestion > DNA isolation > Electrophoresis > Southern blotting > Probe hybridization > Autoradiography

2. ✖ DNA Isolation > Electrophoresis > Restriction digestion > Southern blotting > Probe hybridization > Autoradiography

3. ✖ DNA Isolation > Restriction digestion > Electrophoresis > Probe Hybridization > Southern blotting > Autoradiography

4. ✔ DNA Isolation > Restriction digestion > Electrophoresis > Southern blotting > Probe hybridization > Autoradiography

**Question Number : 45 Question Id : 7877322445 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following immunity is obtained during a life-time

**Options :**

1. ✔ Acquired immunity

2. ✖ Active immunity

3. ✖ Passive immunity

4. ✖ Both active immunity and passive immunity

**Question Number : 46 Question Id : 7877322446 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following cells of the immune system do not perform phagocytosis

**Options :**

1. ✖ Macrophage

2. ✖ Neutrophil

3. ✖ Eosinophil

4. ✔ Basophil

**Question Number : 47 Question Id : 7877322447 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The lactose operon consists of three structural genes: lacZ, which codes for Beta- galactosidase, lacY, which encodes a:

**Options :**

1. ✖ Thiogalactoside transacetylase

2. ✔ Galactoside permease

3. ✖ Translocase

4. ✖ Transferase

**Question Number : 48 Question Id : 7877322448 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Fusion between a plasma cell and a tumor cell creates a

**Options :**

1. ✖ Myeloma

2. ✔ Hybridoma

3. ✖ Lymphoblast

4. ✖ Lymphoma

**Question Number : 49 Question Id : 7877322449 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Mode of DNA replication is

**Options :**

1. ✖ Conservative and bidirectional

2. ✖ Semiconservative and unidirectional

3. ✔ Semiconservative and bidirectional

4. ✖ Conservative and unidirectional

**Question Number : 50 Question Id : 7877322450 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Monoclonal antibodies recognize a single

**Options :**

1. ✖ Antigen

2. ✖ Bacterium

3. ✔ Epitope

4. ✖

Paratope

**Question Number : 51 Question Id : 7877322451 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

A genomic library is a collection of

**Options :**

1. ✖ Genes

2. ✖ Proteins

3. ✖ Vectors

4. ✔ Recombinants

**Question Number : 52 Question Id : 7877322452 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

An example for type III immune complex disease is

**Options :**

1. ✖ Contact dermatitis

2. ✔ Serum sickness

3. ✖ Allergies

4. ✖ Atopy

**Question Number : 53 Question Id : 7877322453 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Before loading an antigenic peptide, MHC molecules exist in

**Options :**

1. ✖ Monomers of α and β chain

2. ✖ Dimers with an empty peptide-binding site

3. ✔ Trimers with peptide binding site with class II-associated invariant peptide

4. ✖ Both Monomers of α and β chain and Dimers with an empty peptide-binding site

**Question Number : 54 Question Id : 7877322454 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following is considered as grave yard of RBC

**Options :**

1. ✖ Bone marrow

2. ✖ Lymph node

3. ✔ Spleen

4. ✖ Thymus

**Question Number : 55 Question Id : 7877322455 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Cosmids have a capacity for cloned DNA of:

**Options :**

1. ✔ 30-45 kb

2. ✖ 10 kb

3. ✖ more than 50 kb

4. ✖ 20 kb

**Question Number : 56 Question Id : 7877322456 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

After getting in to the body of the person, the virus enters into

**Options :**

1. ✖ Monocytes

2. ✔ Macrophages

3. ✖ T-helper cells

4. ✖ T cytotoxic cells

**Question Number : 57 Question Id : 7877322457 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following statements is true about the IgM of humans

**Options :**

1. ✖ IgM can cross the placenta

2. ✖ IgM can protect the mucosal surface

3. ✖ IgM is produced by high-affinity plasma cells

4. ✔ IgM is primarily restricted in the circulation

**Question Number : 58 Question Id : 7877322458 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following is an example of Homology and similarity tool

**Options :**

1. ✔ BLAST

2. ✖ RasMol

3. ✖ EMBOSS

4. ✖ PROSPECT

**Question Number : 59 Question Id : 7877322459 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

A fluid in which the viscosity decreases with increasing stirrer speed and mixing time can be represented as

**Options :**

1. ✖ Newtonian fluid

2. ✔ Pseudoplastic, thixotropic fluid

3. ✖ Dilatant, rheoplastic fluid

4. ✖ Dilatant, pseudoplastic fluid

**Question Number : 60 Question Id : 7877322460 Display Question Number : Yes Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

A higher Ks value of Monod's equation means

**Options :**

1. ✔ Greater affinities to substrate

2. ✖ Lower affinities to substrate

3. ✖ Unaffected with the substrate binding

4. ✖ Lower dissociation constant value

**Question Number : 61 Question Id : 7877322461 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following are not related to Needleman-Wunsch alignment algorithm

**Options :**

1. ✖ Global alignment programs use this algorithm

2. ✖ The output is a positive number

3. ✖ Small changes in the scoring system can produce a different alignment

4. ✔ Changes in the scoring system can produce the same alignment

**Question Number : 62 Question Id : 7877322462 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The transgenic plant developed by anti-sense RNA Technology

**Options :**

1. ✖ Golden rice

2. ✖ Bt cotton

3. ✔ Flavr Savr tomato

4. ✖ Both Golden rice and Bt cotton

**Question Number : 63 Question Id : 7877322463 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

This is a naturally occurring growth inhibitor

**Options :**

1. ✖ NAA

2. ✖ IAA

3. ✖ GA

4. ✔ ABA

**Question Number : 64 Question Id : 7877322464 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

What is the deposition of cDNA into the inert structure called?

**Options :**

1. ✖ DNA probes

2. ✖ DNA polymerase

3. ✔ DNA microarrays

4. ✖ DNA fingerprinting

**Question Number : 65 Question Id : 7877322465 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following statement is true

**Options :**

1. ✖ Energy minimization is carried out using quantum mechanics

2. ✔ Energy minimization is used to find a stable conformation for a molecule

3. ✖

Energy minimization is carried out by varying only bond angles and bond lengths

4. ✖ Energy minimization stops when a structure is formed with a much greater stability than the previous one in process

**Question Number : 66 Question Id : 7877322466 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

All are genome sequencing strategies except

**Options :**

1. ✔ Edman degradation method

2. ✖ Short gun library

3. ✖ Whole genome sequencing

4. ✖ Directed gene sequencing

**Question Number : 67 Question Id : 7877322467 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following immune cells are most effective at destroying intracellular pathogens

**Options :**

1.

✖ T helper cells

2. ✖ B cells

3. ✔ T cytotoxic cells

4. ✖ Plasma cells

**Question Number : 68 Question Id : 7877322468 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

A transplant between individuals of different animal species is termed as

**Options :**

1. ✖ Allograft

2. ✖ Isograft

3. ✔ Xenograft

4. ✖ Endograft

**Question Number : 69 Question Id : 7877322469 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The dilution rate, D is defined as _____

(where F=volumetric flow rate, $V_R$= total volume of culture in the reactor, μ specific growth rate)

**Options :**

1. ✔ $F/V_R$

2. ✖ $V_R/F$

3. ✖ $\mu/F$

4. ✖ $F/\mu$

**Question Number : 70 Question Id : 7877322470 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

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

**Options :**

1. ✖ Embryo culture

2. ✖ Meristem culture

3. ✖ Ovary culture

4. ✔ Anther culture

**Question Number : 71 Question Id : 7877322471 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

DNA sequencing followed by genome annotation are steps of

**Options :**

1. ✖ Comparative genomics

2. ✔ Structural genomics

3. ✖ Functional genomics

4. ✖ Transcriptomics

**Question Number : 72 Question Id : 7877322472 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Batch cultures are type of suspension culture where

**Options :**

1. ✖ Medium is continuously replaced

2. ✔ Medium is loaded only at the beginning

3. ✖ No depletion of medium occurs

4. ✖ Cellular wastes are continuously removed and replaced

**Question Number : 73 Question Id : 7877322473 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Elicitors are molecules that are

**Options :**

1. ✖ Induce cell division

2. ✔ Stimulate production of secondary metabolites

3. ✖ Stimulate hairy root formation

4. ✖ Both Induce cell division and Stimulate production of secondary metabolites

**Question Number : 74 Question Id : 7877322474 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which one of the following is having anti-cancer property

**Options :**

1. ✖ Vinblastin

2. ✖ Diterpenes

3. ✖ Isoquionoline

4. ✔ Both Vinblastin and Diterpenes

**Question Number : 75 Question Id : 7877322475 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Chemostats work on the principle of

**Options :**

1. ✖ Maintaining constant volume of culture

2. ✖ Maintaining continuous flow of nutrients

3. ✔ Maintaining uniform nutrients concentration

4. ✖ Operating at higher pressure

**Question Number : 76 Question Id : 7877322476 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The destruction of microorganisms by steam maybe described as

**Options :**

1. ✔ First order reaction

2. ✖ Second order reaction

3. ✖ Zero order reaction

4. ✖ Third order reaction

**Question Number : 77 Question Id : 7877322477 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which plant product is used in production of anti-inflammatory compound

**Options :**

1. ✖ Taxol

2. ✖ Arbutin

3. ✔ Rosmarinic acid

4. ✖ Berberine

**Question Number : 78 Question Id : 7877322478 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following properties are true for hairy root culture

**Options :**

1. ✖ Stable genotype and phenotype

2. ✖ Slow growth

3. ✖ High level of secondary metabolite production

4. ✔ Both Slow growth and High level of secondary metabolite production

**Question Number : 79 Question Id : 7877322479 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following plant cells shows totipotency

**Options :**

1. ✖ Cork cells

2. ✔ Meristem

3. ✖ Sieve tube

4. ✖ Xylem vessels

**Question Number : 80 Question Id : 7877322480 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The del factor ($\Delta$) increases as the final number of cells

**Options :**

1. ✔ Decreases

2. ✖ Increases

3. ✖ Zero

4. ✖ Constant

**Question Number : 81 Question Id : 7877322481 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

In the activated sludge process

**Options :**

1. ✖ Aeration is continued till stability

2. ✔ Aeration is done with an admixture of previously aerated sludge

3. ✖ Sludge is activated by constant stirring

4. ✖ Water is removed by centrifugal action

**Question Number : 82 Question Id : 7877322482 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Substances having identifiable function and play a key role in normal physiological functioning of cell

**Options :**

1. ✖ Secondary metabolites

2. ✔ Primary metabolites

3. ✖ Metabolites

4. ✖ Biomolecules

**Question Number : 83 Question Id : 7877322483 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Generally Heterotrophic nutrition is

**Options :**

1. ✖ Oxidation of glucose

2. ✖ Breakdown of glucose into energy

3. ✖ Utilization of energy obtained by plants

4. ✔ All the above

**Question Number : 84 Question Id : 7877322484 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

In which of the following separation method where proteins are separated on the basis of their net charge

**Options :**

1. ✖ Affinity chromatography

2. ✔ Ion exchange chromatography

3. ✖ Gel filtration chromatography

4. ✖ Paper chromatography

**Question Number : 85 Question Id : 7877322485 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The number of baffles in a standard stirred tank bioreactor is

**Options :**

1. ✖ 8

2. ✖ 6

3. ✔ 4

4. ✖ 2

**Question Number : 86 Question Id : 7877322486 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Accumulation of lactate in animal cell culture leads to

**Options :**

1. ✖ Increase in pH

2. ✖ No change in pH

3. ✔ Reduction in pH of cell culture causing loss of cell viability

4. ✖ No loss of cell viability

**Question Number : 87 Question Id : 7877322487 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

When dissolved oxygen is lower than the critical concentration, viable cell concentration declines because of

**Options :**

1. ✖ Incomplete glutamine oxidation

2. ✖ Increase in specific lactate production from glucose

3. ✔ Both Incomplete glutamine oxidation and Increase in specific lactate production from glucose

4. ✖ Accumulation of ammonia

**Question Number : 88 Question Id : 7877322488 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

What is the concentration of $CO_2$ required for culturing animal cells

**Options :**

1. ✖ 2-5%

2. ✔ 1-10%

3. ✖ 10-15%

4. ✖ 15-20%

**Question Number : 89 Question Id : 7877322489 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which one of the following techniques is generally used to produce transgenic animals

**Options :**

1. ✖ Processed mRNA containing only exons are introduced into the embryo

2. ✖ Entire foreign nucleus is introduced in the blastocyst-stage enucleated unfertilized egg

3. ✔ Desired DNA is microinjected in to fertilized eggs followed by implantation of the embryo in a foster mother

c-DNA of the desired gene is introduced into animal embryos and implanted in a foster mother

4. ✖

**Question Number : 90 Question Id : 7877322490 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

If liquid density and viscosity remains constant, then the Reynolds number in a stirred tank reactor will vary with the

**Options :**

1. ✖ Impeller diameter

2. ✖ Square root of the impeller diameter

3. ✔ Square of the impeller diameter

4. ✖ Cube of the impeller diameter

**Question Number : 91 Question Id : 7877322491 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Bull semen is stored for artificial insemination in

**Options :**

1. ✖ Ice

2. ✖ Liquid carbon dioxide

3. ✖ Liquid oxygen

4. ✔ Liquid nitrogen

**Question Number : 92 Question Id : 7877322492 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The technique used in animal biotechnology for the rapid multiplication and production of animals with a desirable genotype is

**Options :**

1. ✖ Protoplast fusion and embryo transfer

2. ✖ Hybrid selection and embryo transfer

3. ✔ *In vitro* fertilization and embryo transfer

4. ✖ All of the above

**Question Number : 93 Question Id : 7877322493 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Hybrid antibodies are

**Options :**

1. ✖ Antibodies produced in cell culture

2. ✔ Antibodies designed using rDNA technology produced in cell culture

3. ✖ Antibodies produced in vivo

4. ✖ Both Antibodies produced in cell culture and Antibodies designed using rDNA technology produced in cell culture

**Question Number : 94 Question Id : 7877322494 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

In animal cell cultures, the addition of serum to media is essential for providing

**Options :**

1. ✔ Growth factors

2. ✖ Amino acids for protein synthesis

3. ✖ Nucleotide for DNA synthesis

4.

Both Amino acids for protein synthesis and Nucleotide for DNA synthesis

**Question Number : 95 Question Id : 7877322495 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

All of the following are produced by animal cells in culture and help the cells adhere to the culture dish except

**Options :**

1. Collagen

2. Glycoprotein

3. Hyaluronic acid

4. Phospholipase A

**Question Number : 96 Question Id : 7877322496 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

*Saccharomyces cervisiae* is used in

**Options :**

1. Tanning brewing

2. Brewing

3. ✖ Baking

4. ✖ Both Tanning brewing and Brewing

**Question Number : 97 Question Id : 7877322497 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

A continuous reactor has a dilution rate of 0.5 $h^{-1}$. Its residence time would be

**Options :**

1. ✖ ln (2)/0.5

2. ✖ ln (2) x 0.5

3. ✖ 0.5 h

4. ✔ 2 h

**Question Number : 98 Question Id : 7877322498 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The immobilized enzyme produced by micro encapsulation technique provides

**Options :**

1. ✔ Extremely large surface area

2. ✖ Smaller surface area

3. ✖ High amount of solvent

4. ✖ Low amount of solvent

**Question Number : 99 Question Id : 7877322499 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

During alcoholic fermentation, conversion of sugar into alcohol is due to direct action

**Options :**

1. ✖ Amylase

2. ✖ Protease

3. ✖ Transferase

4. ✔ Zymase

**Question Number : 100 Question Id : 7877322500 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Molasses and corn steep liquor are usually used as

**Options :**

1. ✔ Carbon source for large scale industrial fermentation process

2. ✖ Carbon source for small scale industrial fermentation process

3. ✖ Mineral source for large scale industrial fermentation process

4. ✖ Mineral source for small scale industrial fermentation process

**Question Number : 101 Question Id : 7877322501 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The first cloned sheep "Dolly" was created through which of these techniques

**Options :**

1. ✖ Nuclear transfer

2. ✖ Gene transfer

3. ✖ Germinal cell transfer

4. ✔ Somatic cell transfer

**Question Number : 102 Question Id : 7877322502 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which amongst the following is used in raising super-milk cows

**Options :**

1. ✖ Artificial insemination with pedigree bull

2. ✖ Embryo transplantation

3. ✖ Superovulation of high yielding cow

4. ✔ All the above

**Question Number : 103 Question Id : 7877322503 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Protein separation techniques are often based on the following properties except

**Options :**

1. ✖ Solubility of protein

2. ✔ Viscosity of the protein

3. ✖ Charge of the protein

4. ✖ Specific binding affinity of the protein

**Question Number : 104 Question Id : 7877322504 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which of the following separation method is suited for a protein sample with large differences in molecular mass

**Options :**

1. ✖ Dialysis

2. ✖ Salting out process

3. ✖ Density gradient centrifugation

4. ✔ Rate zonal centrifugation

**Question Number : 105 Question Id : 7877322505 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The bioremediation process involving the usage of plants to degrade pollutants is

**Options :**

1. ✖ Composting

2. ✖ Biopile

3. ✔ Phytoremediation

4. ✖ Land farming

**Question Number : 106 Question Id : 7877322506 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

A trickling filter is used for

**Options :**

1. ✖ Antibiotic production

2. ✖ Beer production

3. ✖ Citric acid production

4. ✔ Waste water treatment

**Question Number : 107 Question Id : 7877322507 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Fermenter should be filled with medium up to

**Options :**

1. ✖ 65-70%

2. ✖ 70-75%

3. ✔ 75-80%

4. ✖ 80-85%

**Question Number : 108 Question Id : 7877322508 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Amylase enzyme is produced by fungus

**Options :**

1. ✖ *Aspergillus niger*

2. ✔ *Aspergillus oryzae*

3. ✖ *Aspergillus fumigatus*

4. ✖ *Aspergillus terreus*

**Question Number : 109 Question Id : 7877322509 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The monod's model predicts that the specific growth rate

**Options :**

1. ✔ Will increase with the concentration of the growth limiting substrate until it reaches a maximum value

2. ✖ Will decrease with the concentration of the growth limiting substrate

3. ✖ Will increase with the concentration of the growth limiting substrate

4. ✖ Does not depend on growth limiting substrate

**Question Number : 110 Question Id : 7877322510 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Which one of the following uses reduced organic molecules as carbon source

**Options :**

1. ✖ Organotrophs

2. ✔ Heterotrophs

3. ✖ Autotrophs

4. ✖ Lithotrophs

**Question Number : 111 Question Id : 7877322511 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The infinite series $\sum_{n=0}^{\infty} x^n$ is convergent for $x$ values in

**Options :**

1. ✔ (-1,1)

2. ✖ $[-1,1]$

3. ✖ $[-1,1)$

4. ✖ $(-1,1]$

**Question Number : 112 Question Id : 7877322512 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The value of $\iint_S F.ds$, where $F(x,y,z) = (\cos z + xy^2)\,\boldsymbol{i} + xe^{-z}\,\boldsymbol{j} + (\sin y + x^2 z)\,\boldsymbol{k}$ and $S$ is the surface of solid bounded by the paraboloid $z = x^2 + y^2$ and the plane $z = 4$ is

**Options :**

1. ✖ $32\pi$

2. ✔ $32\frac{\pi}{3}$

3. ✖ $64\frac{\pi}{3}$

4. ✖ $64\pi$

**Question Number : 113 Question Id : 7877322513 Display Question Number : Yes Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Inverse Laplace transform of $\frac{s}{\left(s+\frac{1}{2}\right)^2+1}$ is

**Options :**

1. ✖ $e^{-t/2}\left(\frac{1}{2}\cos t - \sin t\right)$

2. ✖ $e^{-t/2}\left(\cos t + \frac{1}{2}\sin t\right)$

3. ✖ $e^{-t/2}\left(\frac{1}{2}\cos t + \sin t\right)$

4. ✔ $e^{-t/2}\left(\cos t - \frac{1}{2}\sin t\right)$

**Question Number : 114 Question Id : 7877322514 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The solution of the differential equation $(xy^4 + y)dx - xdy = 0$ is

**Options :**

1. ✔ $\frac{x^4}{4} + \frac{x^3}{3y^3} = C$

2. ✖ $\frac{y^4}{4} + \frac{x^3}{3y^3} = C$

3. $\frac{x^4}{4}+\frac{y^4}{4}=C$

4. $\frac{x^3}{3}+\frac{y^3}{3}=C$

**Question Number : 115 Question Id : 7877322515 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The solution of the initial value problem $4x^2\frac{d^2y}{dx^2}+24x\frac{dy}{dx}+25y=0; y(1)=2, \frac{dy}{dx}(1)=-6$ at $x=2$ is

**Options :**

1. $\frac{2-\ln 2}{2^{5/2}}$

2. $\frac{2+\ln 2}{2^{5/2}}$

3. $\frac{2-\ln 2}{2^{3/2}}$

4. $\frac{2+\ln 2}{2^{3/2}}$

**Question Number : 116 Question Id : 7877322516 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

If $A$ and $B$ are two independent events such that $P(A)=\frac{1}{2}$ and $P(B)=\frac{1}{5}$ then $P(A|A\cup B)$ is

**Options :**

1. ✖ $\frac{1}{6}$

2. ✖ $\frac{7}{6}$

3. ✔ $\frac{5}{6}$

4. ✖ $\frac{4}{6}$

**Question Number : 117 Question Id : 7877322517 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

If $X$ has the probability density function $f(x)=\frac{k}{x!}\ (x=0,1,2,\ldots)$. The values of $k$ and $P(X\geq 3)$ are

**Options :**

1. ✔ $\frac{1}{e}, 8.03\%$

2. ✖ $e, 8.03\%$

3. ✖ $\frac{1}{e}, 10\%$

4. ✖ $\frac{1}{e}, 12\%$

**Question Number : 118 Question Id : 7877322518 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

If $f(x) = \begin{vmatrix} x^n & \sin x & \cos x \\ n! & \sin\frac{n\pi}{2} & \cos\frac{n\pi}{2} \\ a & a^2 & a^3 \end{vmatrix}$, then the value of $\frac{d^n}{dx^n}(f(x))$ at $x = 0$ is

**Options :**

1. ✖ $a^3$

2. ✔ $0$

3. ✖ $a^2$

4. ✖ $a$

**Question Number : 119 Question Id : 7877322519 Display Question Number : Yes Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

The largest eigenvalue of $A^5$, where $A = \begin{bmatrix} 1 & 2 \\ 0 & 2 \end{bmatrix}$ is

**Options :**

1. ✖ 16

2. ✖ 1

3. ✔ 32

4. ✖ 2

**Question Number : 120 Question Id : 7877322520 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

Consider $\frac{dy}{dx} = y - x^2 + 1, 0 \le x \le 2; y(0) = 0.5.$

The approximate solution of $y$ at $x = 0.4$ using Euler's method with the step size $h = 0.2$ is

**Options :**

1. ✔ 1.152

2. ✖ 1.432

3. ✖

1.354

4. ✖ 1.541