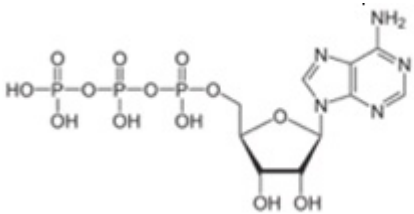


Group of Paper :: B.Sc Biotechnology/B.Sc Microbiology

Q. No. 1 0031001	Fructose and Glucose are:
Option A	Isomers
Option B	Polymers
Option C	Diastereomers
Option D	Epimers
Correct Option	A

Q. No. 2 0031002	Which of the following has a higher ratio of $\alpha(1 \rightarrow 6) / \alpha(1 \rightarrow 4)$ bonds?
Option A	Starch
Option B	Cellulose
Option C	Glycogen
Option D	Maltodextrin
Correct Option	C

Q. No. 3 0031003	The copolymers of N-acetyl muramic acid and N-acetyl glucosamine are called
Option A	Lipopolysaccharides
Option B	Peptidoglycans
Option C	Nitrosoamines
Option D	Nucleo-polysaccharides
Correct Option	B

Q. No. 4 0031004	 <p style="text-align: center;">This molecule is:</p>
Option A	Inosine Triphosphate
Option B	Adenosine Triphosphate
Option C	Guanosine Triphosphate
Option D	Xanthosine Triphosphate
Correct Option	B

Q. No. 5 0031005	FAD and NAD are electron acceptors; they accept the following number of electrons respectively
Option A	1 and 1
Option B	1 and 2
Option C	2 and 1

Option D	2 and 2
Correct Option	C

Q. No. 6 0031006	Which of the following is a non-protein amino acid?
Option A	Lysine
Option B	Glycine
Option C	Arginine
Option D	Ornithine
Correct Option	D

Q. No. 7 0031007	Collagen is made up mostly of:
Option A	Glycine and Proline
Option B	Lysine and Proline
Option C	Arginine and Lysine
Option D	Serine and Threonine
Correct Option	A

Q. No. 8 0031008	Which of the following is an essential amino acid?
Option A	Glycine
Option B	Lysine
Option C	Serine
Option D	Alanine
Correct Option	B

Q. No. 9 0031009	What is the function of lipids?
Option A	Energy Storage
Option B	Signaling
Option C	Cellular Structure
Option D	All of the above
Correct Option	D

Q. No. 10 0031010	Which of the following can act as detergents?
Option A	Cholesterol
Option B	Phosphatidyl Choline
Option C	Tributyryn
Option D	Stearyl Caproate
Correct Option	B

Q. No. 11 0031011	Which of the following is the known as the power house of the cell

Option A	Mitochondria
Option B	Nucleus
Option C	Adenosine Triphosphate
Option D	Golgi Apparatus
Correct Option	A

Q. No. 12 0031012	Which of the following is involved in translation?
Option A	Mitochondria
Option B	Endoplasmic Reticulum
Option C	Nucleus
Option D	Golgi Apparatus
Correct Option	B

Q. No. 13 0031013	Lipopolysaccharides are found in the cell wall of:
Option A	Plants
Option B	Bacteria
Option C	Fungi
Option D	Animals
Correct Option	B

Q. No. 14 0031014	Spindle fibers formed during eukaryotic cell division are made of
Option A	Actin
Option B	Myosin
Option C	Tubulin
Option D	Keratin
Correct Option	C

Q. No. 15 0031015	Golgi complexes have a role in
Option A	Energy production
Option B	Protein recycling
Option C	Post translational modification and transport
Option D	Macromolecular biosynthesis
Correct Option	C

Q. No. 16 0031016	Meiosis is observed in
Option A	Asexual Organisms Only
Option B	Sexual Organism Only
Option C	Asexual and sexual organisms
Option D	Only Bacteria
Correct Option	B

Q. No. 17 0031017	Splicing of nascent RNA takes place in
Option A	Nucleus
Option B	Nucleolus
Option C	Endoplasmic Reticulum
Option D	Cytoplasm
Correct Option	A
Q. No. 18 0031018	Functional small-G proteins are often found anchored to
Option A	Mitochondria
Option B	Nuclear Membrane
Option C	Lipid Rafts
Option D	Endoplasmic Reticulum
Correct Option	C
Q. No. 19 0031019	The lipid bilayer in a cell is a
Option A	Homogenous mixture of proteins and lipids
Option B	Heterogeneous mixture of proteins and lipids
Option C	A mosaic of proteins, lipids and rafts
Option D	Impermeable protective cover of lipid over the cytoplasm
Correct Option	C
Q. No. 20 0031020	A comprehensive eukaryotic cell cycle consists of
Option A	S and G phases
Option B	S, G1 and G2 Phases
Option C	S, G1, G2, Mitosis and G0 Phases
Option D	S, G1, G2 and Cell Division
Correct Option	D
Q. No. 21 0031021	According to Mendel,
Option A	Traits segregate independently
Option B	Protein was the carrier of genetic information
Option C	Trait segregation was unique to Pea plant
Option D	Trait segregation in plants and animal models were distinct
Correct Option	A
Q. No. 22 0031022	A gene with two alleles determines handedness in humans. For a pair of heterozygous right-handed parents, what is the probability that a child will be left handed?
Option A	0.66
Option B	0.47
Option C	0.25

Option D	0.10
Correct Option	C

Q. No. 23 0031023	In a cross between a homozygous white flowered plant (WW), and a homozygous red flowered plant (RR), yields pink flowered plants. This is called
Option A	Codominance
Option B	Incomplete codominance
Option C	Incomplete dominance
Option D	Admixture
Correct Option	C

Q. No. 24 0031024	According to Hardy-Weinberg equation, the prevalence of heterozygotes in a population is given by? ["a" is the dominant allele, b is the recessive allele]
Option A	$1 - (a + b)$
Option B	$(1 - (a^2 + b^2))/2$
Option C	$1 / (a^2 + b^2)$
Option D	$[1 - (a^2 + b^2)] / (a^2 + b^2)$
Correct Option	B

Q. No. 25 0031025	In heterodominant, monogenic biallelic traits with heterozygous parents, the phenotype of F1 follows the following inheritance pattern
Option A	50:50 [dominant : recessive]
Option B	90:10 [dominant:recessive]
Option C	75:25 [dominant:recessive]
Option D	80:20 [dominant:recessive]
Correct Option	C

Q. No. 26 0031026	DNA replication happens from
Option A	$5' \rightarrow 3'$ direction only
Option B	$3' \rightarrow 5'$ direction only
Option C	Both $5' \rightarrow 3'$, and $3' \rightarrow 5'$ directions
Option D	Depends on the organism
Correct Option	A

Q. No. 27 0031027	DNA polymerases need RNA primers to initiate replication, because
Option A	DNA / RNA double helix is thermodynamically more stable
Option B	RNA polymerases can polymerize ab initio, but DNA polymerase can't
Option C	Ribonucleotides are energetically less costly to synthesise
Option D	None of the above
Correct Option	B

Q. No. 28	Okazaki Fragments aid in
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0031028	
Option A	Seamless replication initiation
Option B	Overcoming unidirectional synthesis of polynucleotides
Option C	Mitigate effects of DNA supercoiling
Option D	Transcription
Correct Option	B

Q. No. 29 0031029	Bacterial transcription starts at a short fragment of specific sequence, called the
Option A	TATA Box
Option B	Shine Dalgarno Sequence
Option C	Promoter
Option D	Enhancer
Correct Option	C

Q. No. 30 0031030	Bacterial transcription differs from Eukaryotic transcription in
Option A	Length of transcripts
Option B	Concomitant transcription and translation
Option C	Differing biases towards nucleotides
Option D	Use of non coding RNA fragments in transcription
Correct Option	B

Q. No. 31 0031031	This enzyme plays an important role in maintaining levels of supercoiling during DNA unwinding
Option A	Helicase
Option B	Gyrase
Option C	Topoisomerase
Option D	All of the above
Correct Option	D

Q. No. 32 0031032	Lac operon is an example of
Option A	Feedback regulation
Option B	Transcriptional control
Option C	Small molecular based regulation
Option D	All of the above
Correct Option	B

Q. No. 33 0031033	Trp operon is an example of
Option A	Transcriptional regulation
Option B	Post transcriptional regulation
Option C	Translational regulation
Option D	Post translational regulation

Correct Option	C
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Q. No. 34 0031034	A key molecule for ensuring Lac operon functioning is
Option A	Lactose
Option B	Allolactose
Option C	Poly lactose
Option D	Glucose
Correct Option	B

Q. No. 35 0031035	Rho factor is used in
Option A	One form of transcriptional initiation
Option B	One form of translational initiation
Option C	One form of transcriptional termination
Option D	One form of translational termination
Correct Option	C

Q. No. 36 0031036	Shine Dalgarno Sequence
Option A	Is used by RNA polymerase
Option B	Is used by DNA polymerase
Option C	Is used by Ribosomes
Option D	Used by Protein degradation machinery
Correct Option	C

Q. No. 37 0031037	21 st Trisomy is also known as
Option A	Klinefelter's Syndrome
Option B	Duchenne's Dystrophy
Option C	Down Syndrome
Option D	Rubenstein Taybi Syndrome
Correct Option	C

Q. No. 38 0031038	Which of the following is a single gene disorder?
Option A	Phenyl Ketonuria
Option B	Type II Diabetes Mellitus
Option C	Polycystic Ovarian Syndrome
Option D	Progressive Hypertension
Correct Option	A

Q. No. 39 0031039	Which of the following is an X-linked disorder
Option A	Phenyl Ketonuria

Option B	Duchenne's Muscular Dystrophy
Option C	Cystic Fibrosis
Option D	Tay-Sachs Disease
Correct Option	B

Q. No. 40 0031040	Which type of restriction enzymes cut at the site of recognition?
Option A	Type I
Option B	Type II
Option C	Both (Type I) and (Type II)
Option D	Neither
Correct Option	B

Q. No. 41 0031041	How would you insert a heterologous gene into a Plant cell?
Option A	Phagemids
Option B	Ti-Plasmid based transfer
Option C	F-plasmid based transfer
Option D	Artificial Chromosomes
Correct Option	B

Q. No. 42 0031042	What does the term MCS mean in cloning vectors?
Option A	Mammalian cloning site
Option B	Microbial cloning site
Option C	Multiple cloning site
Option D	Multiply cloned sequences
Correct Option	C

Q. No. 43 0031043	What is the function of variable region in an antibody?
Option A	Provides antigenicity to the antibody
Option B	Provides specificity to the antibody
Option C	Provides stability of the antibody
Option D	Provides immunogenicity to the antibody
Correct Option	B

Q. No. 44 0031044	Humoral immunity concerns with immunity in
Option A	The Vitreous humor of the eye
Option B	The Immunity in the Humerus (upper arm)
Option C	The non cellular fraction of bloody
Option D	None of the above
Correct Option	C

Q. No. 45 0031045	Which of these cells play an important role in controlling viral infection?
Option A	Dendritic cells
Option B	T-cells
Option C	Macrophages
Option D	B-Cells
Correct Option	B

Q. No. 46 0031046	What cells in the immune system ensure efficacy of vaccination?
Option A	Memory B-cells
Option B	Memory T-cells
Option C	Memory Dendritic Cells
Option D	Memory Macrophages
Correct Option	B

Q. No. 47 0031047	Ribulose is a
Option A	Ketotetrose
Option B	Aldotetrose
Option C	Ketopentose
Option D	Aldopentose
Correct Option	A

Q. No. 48 0031048	Which of the following are responsible for graft rejection in organ transplants?
Option A	MHC - 1
Option B	MHC - 2
Option C	Both (MHC - 1) and (MHC - 2)
Option D	Neither
Correct Option	C

Q. No. 49 0031049	Which are the two Kreb's cycles?
Option A	Photosynthesis and Tricarboxylic Acid cycles
Option B	Photosynthesis and Urea Cycles
Option C	TCA and Urea Cycles
Option D	Pentose Phosphate Shunt and TCA Cycles
Correct Option	C

Q. No. 50 0031050	Which is the first step in a PCR?
Option A	Denaturation
Option B	Primer extension
Option C	Annealing
Option D	Cooling

Correct Option	A
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Q. No. 51 0081001	Interaction of Rhizobia with root nodules is called
Option A	Antibiosis
Option B	Symbiosis
Option C	Heterotropism
Option D	Phototropism
Correct Option	B

Q. No. 52 0081002	Which of the following is not a Chromatography technique?
Option A	HPLC
Option B	Affinity
Option C	Ion Exchange
Option D	RFLP
Correct Option	D

Q. No. 53 0081003	One of the differences between SEM and TEM is
Option A	Source of radiation
Option B	High Vacuum
Option C	Electron scattering
Option D	Nature of lenses
Correct Option	C

Q. No. 54 0081004	MALDI-TOF is based on
Option A	Transmission Of Fibres
Option B	Tandem Oligomeric Fragments
Option C	Time Of Flight
Option D	Treatment Optimized Fluorescence
Correct Option	C

Q. No. 55 0081005	Which of the following is not a result of fermentation?
Option A	Cheese
Option B	Dosa Batter
Option C	Chocolate
Option D	Sauerkraut
Correct Option	C

Q. No. 56 0081006	Which of the following is a different type of enzyme?
Option A	RuBisCO

Option B	RNA Polymerase
Option C	Ribozyme
Option D	Lysozyme
Correct Option	C

Q. No. 57 0081007	Which of the following is an active enzyme complex?
Option A	Apoenzyme
Option B	Holoenzyme
Option C	Zymogen
Option D	All of the above
Correct Option	B

Q. No. 58 0081008	Identify the following equation $v_0 = \frac{V_{max}[S]}{K_M + [S]}$
Option A	Beer-Lambert's Law
Option B	Michaelis-Menten Equation
Option C	Hill Equation
Option D	Briggs-Haldane Equation
Correct Option	B

Q. No. 59 0081009	In an enzyme inhibition reaction, the K_M of the reaction remains the same while V_{Max} is lower. This type of inhibitor is called?
Option A	Competitive inhibitor
Option B	Non-competitive inhibitor
Option C	Activator
Option D	None-of the above
Correct Option	B

Q. No. 60 0081010	Place the following reactants in their proper order for an indirect ELISA test. 1 = enzyme-linked antibody 2 = known antigen 3 = patient serum 4 = substrate
Option A	2,3,1,4
Option B	1,2,3,4
Option C	3,2,1,4
Option D	3,1,2,4
Correct Option	A

Q. No. 61 0081011	Which of the following is best to sterilize heat labile solutions?
Option A	Autoclave
Option B	Dry Heat
Option C	Pasteurization
Option D	Membrane Filtration

Correct Option	D
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Q. No. 62 0081012	Ethylene oxide is used to destroy or kill which of the following microbes?
Option A	Bacteria
Option B	Spores
Option C	Fungi
Option D	All of the above
Correct Option	D

Q. No. 63 0081013	Prokaryotic ribosomes consist of 50S and 30S subunits that come together to form a _____S ribosome
Option A	60
Option B	70
Option C	80
Option D	None of the above
Correct Option	B

Q. No. 64 0081014	In Gram staining if the bacterial cells retain the crystal violet stain after treatment with Iodine solution then the bacteria is
Option A	Gram positive
Option B	Gram negative
Option C	Procedure is incomplete to answer the question
Option D	None of the above
Correct Option	C

Q. No. 65 0081015	Which of the following is a beneficial microbe?
Option A	Streptomyces griseus
Option B	Streptococcus pyogenes
Option C	Mycobacterium bovis
Option D	Listeria monocytogenes
Correct Option	A

Q. No. 66 0081016	Tissues that cover internal organs and external tissues is
Option A	Epidermal tissue
Option B	Muscle Tissue
Option C	Epithelial Tissue
Option D	Epidermal tissue and Epithelial Tissue
Correct Option	C

Q. No. 67 0081017	A lysosome is
Option A	an organelle involved in digestion and waste removal

Option B	a lysogenic viral particle
Option C	an anti-microbial enzyme
Option D	None of the above
Correct Option	A

Q. No. 68 0081018	Bacterial culture enumeration can be done by
Option A	Flow cytometry
Option B	Turbidity
Option C	Colony counting
Option D	Any of the above
Correct Option	D

Q. No. 69 0081019	What is a mycoplasma?
Option A	A bacteria looking like a fungus
Option B	A bacterium without a cell wall
Option C	A fungus looking like a bacteria
Option D	The fungal cytoplasm
Correct Option	B

Q. No. 70 0081020	Which of the following don't work on Mycoplasmas?
Option A	Streptomycin
Option B	Gentamycin
Option C	Penicillin
Option D	Tetracycline
Correct Option	C

Q. No. 71 0081021	PBMCs are
Option A	Stably transformed cell lines
Option B	Cancer derived cells
Option C	Mixture of Primary cells
Option D	None of the above
Correct Option	C

Q. No. 72 0081022	In Fred Griffith's experiment, the transforming factor was
Option A	Nuclease sensitive
Option B	Protease sensitive
Option C	Heat sensitive
Option D	All of the Above
Correct Option	A

Q. No. 73 0081023	Evolution happens through
Option A	Single Nucleotide Polymorphism
Option B	Horizontal Gene Acquisition
Option C	Large scale deletions and pseudogene formation
Option D	All of the above
Correct Option	D

Q. No. 74 0081024	Insulin in Humans is a
Option A	Monovalent protein
Option B	Bivalent protein
Option C	Tetravalent protein
Option D	Hexavalent protein
Correct Option	D

Q. No. 75 0081025	Which of the following is a prevalent problem in expressing human genes in Bacteria?
Option A	Lack of post translational modification
Option B	Codon bias
Option C	Toxicity to Host system
Option D	None of the above
Correct Option	A

Q. No. 76 0081026	What is transduction?
Option A	Transfer of DNA by phage
Option B	Fall out of gene expression from nearby genes
Option C	Plasmid based gene transfer
Option D	Biolistics based gene transfer
Correct Option	A

Q. No. 77 0081027	During electrophoresis, DNA will migrate towards
Option A	Cathode or positive electrode
Option B	Anode or negative electrode
Option C	Cathode or negative electrode
Option D	Anode or positive electrode
Correct Option	A

Q. No. 78 0081028	What is the role of SDS in SDS-PAGE
Option A	Imparting overall negative charge to the protein
Option B	Protein unfolding alone and neutral charge
Option C	Protein denaturing and imparting net negative charge
Option D	Adding equal molecular weight to all proteins

Correct Option	C
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Q. No. 79 0081029	Which of the following proteins would elute last during gel filtration? Lysozyme (Mw 14307 Da) Albumin (Mw 66500 Da) Ribonuclease A (Mw 13700 Da) Protein A (Mw 34000Da)
Option A	Lysozyme
Option B	Albumin
Option C	Ribonuclease A
Option D	Protein A
Correct Option	B

Q. No. 80 0081030	Using estrogen to purify its receptor is
Option A	Ion Exchange chromatography
Option B	Affinity Chromatography
Option C	High performance Liquid chromatography
Option D	Thin Layer Chromatography
Correct Option	B

Q. No. 81 0081031	H. pylori survives in the stomach by
Option A	Creating an acid resistant outer cell wall
Option B	Producing ammonia by degrading Urea
Option C	Secreting Lys/Arg rich peptide to counter acidity
Option D	All of the above
Correct Option	B

Q. No. 82 0081032	S. aureus causes high fever by
Option A	Non specific activation of immune system
Option B	Producing highly immunogenic antigens
Option C	Suppressing anti-immune systems in the host
Option D	None of the above
Correct Option	A

Q. No. 83 0081033	Mycobacterium leprae is a
Option A	Obligate parasite
Option B	Free living bacterium
Option C	Fast growing pathogen
Option D	Highly contagious pathogen
Correct Option	A

Q. No. 84 0081034	Interferons are
Option A	Internal promoters
Option B	Segment of protein capable of self-excision
Option C	Immune modulators
Option D	Small Interfering RNA
Correct Option	C

Q. No. 85 0081035	Which of the following are anchorage dependent
Option A	B-Cell Derived
Option B	Epithelial
Option C	Monocytes
Option D	All of the Above
Correct Option	B

Q. No. 86 0081036	A cDNA library is
Option A	a library of circular DNA
Option B	a library of DNA derived from mRNA
Option C	a library of cosmids
Option D	a library of cis-DNA
Correct Option	B

Q. No. 87 0081037	Which of the following is a precursor to all biological photosensory systems?
Option A	cone cells in multicellular organisms
Option B	rhodopsin in purple bacteria
Option C	retinoic acid
Option D	auxins in jelly fish
Correct Option	B

Q. No. 88 0081038	Rods and cones are respectively responsible for
Option A	monochromatic and coloured vision
Option B	coloured and monochromatic vision
Option C	high and low light vision
Option D	detecting stationary and moving objects
Correct Option	A

Q. No. 89 0081039	Surface charge of bacterial cells is predominantly
Option A	Positive
Option B	Negative
Option C	Neutral
Option D	Zwitter ionic

Correct Option	B
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Q. No. 90 0081040	Bacteria use the following for motility
Option A	Cilia
Option B	Flagella
Option C	Pseudopodia
Option D	All of the Above
Correct Option	B

Q. No. 91 0081041	Flagellar Systems are similar in their structure and function to
Option A	Photoreceptor system
Option B	Metabolite transport system
Option C	Protein secretion system
Option D	All of the above
Correct Option	C

Q. No. 92 0081042	What happens during depolarization in a membrane?
Option A	Membrane loses built up ionic imbalance
Option B	H ⁺ ions from outside are allowed to flood inside
Option C	Membrane charge goes from negative to neutral
Option D	All of the above
Correct Option	D

Q. No. 93 0081043	To cross the cell membrane, Water must be
Option A	Transported against the energy gradient
Option B	Accompanied by phospholipid molecules
Option C	Pass through aquaporins
Option D	All of the above
Correct Option	D

Q. No. 94 0081044	What happens to vacuole formation, when cell is moved from isotonic to hypertonic solution
Option A	Increases in size
Option B	Decreases in size
Option C	Decreases, and then increases
Option D	Doesn't change
Correct Option	B

Q. No. 95 0081045	Process of material intake through invagination of vacuole, in a cell is
Option A	Endocytosis

Option B	Exocytosis
Option C	Endoscopy
Option D	Pinocytosis
Correct Option	A

Q. No. 96 0081046	Macrophages are
Option A	Antigenic cells
Option B	Antigen Presenting Cells
Option C	Anti-viral cells
Option D	All of the above
Correct Option	B

Q. No. 97 0081047	Interaction of Antigens with their cognate antibodies is
Option A	Agglutination
Option B	Aggregation
Option C	Immuno-cognition
Option D	None of the above
Correct Option	A

Q. No. 98 0081048	How many chains does the Human Ig-G has?
Option A	4
Option B	3
Option C	2
Option D	1
Correct Option	A

Q. No. 99 0081049	What is a IMViC test used for?
Option A	For checking viability
Option B	For classification
Option C	For pathogenicity
Option D	For Allergenicity
Correct Option	B

Q. No. 100 0081050	What is the Ame's test used for?
Option A	Growth curve estimation
Option B	Detection of amines
Option C	Assess mutagenicity of chemicals
Option D	Immunogenicity of bacteria
Correct Option	C

