

Group of Paper :: BSc Biotech / Microbiology

Q. No. 1 0331001	Which of the following is not a monosaccharide?
Option A	Glucose
Option B	Fructose
Option C	Sucrose
Option D	Galactose
Correct Option	C

Q. No. 2 0331002	Which lipid serves as a major component of cell membranes?
Option A	Triglycerides
Option B	Cholesterol
Option C	Phospholipids
Option D	Steroids
Correct Option	C

Q. No. 3 0331003	The catalog of all proteins functioning in a cell is the
Option A	proteomics
Option B	proteasome
Option C	proteome
Option D	metabolome
Correct Option	C

Q. No. 4 0331004	What is the primary function of nucleic acids in cells?
Option A	Energy storage
Option B	Enzyme catalysis
Option C	Information storage
Option D	Cellular structure
Correct Option	C

Q. No. 5 0331005	For the study of protein in detail, an effort is usually made to first:
Option A	Determine its amino acid composition
Option B	Determine its molecular weight
Option C	purify the protein
Option D	Determine its amino acid sequence
Correct Option	C

Q. No. 6 0331006	Which of the following is not a component of a biosensor ?
Option A	Receptor molecule
Option B	Microorganism
Option C	Signal amplifier
Option D	Transducer
Correct Option	B

Q. No. 7 0331007	Integrins are
Option A	membrane proteins that are involved in ion transport.
Option B	membrane proteins that mediate cell adhesion.
Option C	proteins of the extracellular matrix that bind to cell surface proteins.
Option D	membrane proteins that are involved in sugar transport.

Correct Option	B
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Q. No. 8 0331008	Movement of water across membranes is facilitated by proteins called
Option A	annexins
Option B	aquaporins
Option C	hydroporins
Option D	selectins
Correct Option	B

Q. No. 9 0331009	In a phospholipid molecule, which part is hydrophilic?
Option A	The phosphate head group
Option B	The fatty acid tails
Option C	The glycerol backbone
Option D	The cholesterol molecule
Correct Option	A

Q. No. 10 0331010	Which enzyme is responsible for synthesizing RNA from a DNA template during transcription?
Option A	DNA polymerase
Option B	Helicase
Option C	Ligase
Option D	RNA polymerase
Correct Option	D

Q. No. 11 0331011	The genotype of an organism refers to:
Option A	Its physical characteristics.
Option B	Its genetic makeup.
Option C	Its phenotype.
Option D	Its environment.
Correct Option	B

Q. No. 12 0331012	When two genes are located close to each other on the same chromosome and tend to be inherited together, this is known as:
Option A	Codominance.
Option B	Independent assortment.
Option C	Linkage.
Option D	Pleiotropy
Correct Option	C

Q. No. 13 0331013	Which syndrome is characterized by an extra X chromosome, resulting in a karyotype of 47, XXY?
Option A	Klinefelter syndrome
Option B	Cri-du-chat syndrome
Option C	Turner syndrome
Option D	Down syndrome
Correct Option	A

Q. No. 14 0331014	Cri-du-chat syndrome is caused by a deletion on which chromosome?
Option A	Chromosome 13
Option B	Chromosome 18
Option C	Chromosome 21
Option D	Chromosome 5
Correct Option	D

Q. No. 15 0331015	Which organelle is responsible for producing ATP, the cell's primary energy currency?
Option A	Nucleus
Option B	Mitochondrion
Option C	Endoplasmic reticulum
Option D	Golgi apparatus
Correct Option	B

Q. No. 16 0331016	Which organelle is responsible for protein synthesis in the cell?
Option A	Golgi apparatus
Option B	Nucleus
Option C	Ribosome
Option D	Endoplasmic reticulum
Correct Option	C

Q. No. 17 0331017	Which of the following terms describes a type of structural chromosome aberration where a segment of one chromosome is transferred to another chromosome?
Option A	Translocation
Option B	Aneuploidy
Option C	Polyploidy
Option D	Deletion
Correct Option	A

Q. No. 18 0331018	What is the term for a chromosome aberration where a portion of a chromosome is lost or deleted?
Option A	Duplication
Option B	Inversion
Option C	Translocation
Option D	Deletion
Correct Option	D

Q. No. 19 0331019	Which type of plant is characterized by separate male and female individuals?
Option A	Dioecious
Option B	Monoecious
Option C	Hermaphroditic
Option D	Unisexual
Correct Option	A

Q. No. 20 0331020	What is the term for organisms that can change their sex during their lifetime, such as some fish species?
Option A	Hermaphroditic
Option B	Bisexual
Option C	Unisexual
Option D	Sequential hermaphrodite
Correct Option	D

Q. No. 21 0331021	Which region of a eukaryotic gene contains the coding sequence that is translated into a protein?
Option A	Promoter
Option B	Exon
Option C	Intron
Option D	Enhancer
Correct Option	B

Q. No. 22 0331022	In eukaryotic cells, where does transcription take place?
Option A	In the nucleus

Option B	In the cytoplasm
Option C	In the ribosomes
Option D	In the mitochondria
Correct Option	A

Q. No. 23 0331023	Which molecule carries amino acids to the ribosome during translation?
Option A	Messenger RNA (mRNA)
Option B	Transfer RNA (tRNA)
Option C	Ribosomal RNA (rRNA)
Option D	Small nuclear RNA (snRNA)
Correct Option	B

Q. No. 24 0331024	Which step in translation involves the binding of the anticodon of a tRNA molecule to the codon of the mRNA?
Option A	Splicing
Option B	Termination
Option C	Elongation
Option D	Initiation
Correct Option	C

Q. No. 25 0331025	In eukaryotes, the nucleus is enclosed by a double membrane called
Option A	nuclear envelope
Option B	Nucleolus
Option C	cell membrane
Option D	nucleoplasm
Correct Option	A

Q. No. 26 0331026	What is the start codon for protein synthesis in yeast?
Option A	AUG
Option B	UAA
Option C	UAG
Option D	UGA
Correct Option	A

Q. No. 27 0331027	Which process involves the removal of specific amino acids or peptide segments from a protein during post-translational modification?
Option A	Glycosylation
Option B	Phosphorylation
Option C	Proteolysis
Option D	Acetylation
Correct Option	C

Q. No. 28 0331028	What is a mutation?
Option A	A type of genetic engineering
Option B	A permanent change in DNA sequence
Option C	A temporary alteration of RNA structure
Option D	A natural selection process
Correct Option	B

Q. No. 29 0331029	Who, along with James Watson, is credited with the discovery of the double helical structure of DNA?
Option A	Rosalind Franklin
Option B	Linus Pauling
Option C	Maurice Wilkins

Option D	Francis Crick
Correct Option	D

Q. No. 30 0331030	Which scientists proposed the base-pairing rules, stating that adenine pairs with thymine and guanine pairs with cytosine in DNA?
Option A	James Watson and Francis Crick
Option B	Rosalind Franklin and Maurice Wilkins
Option C	Linus Pauling
Option D	Erwin Chargaff
Correct Option	D

Q. No. 31 0331031	What is the primary function of DNA in living organisms?
Option A	Energy storage
Option B	Protein synthesis
Option C	Cell division
Option D	Genetic Information storage
Correct Option	D

Q. No. 32 0331032	Who is considered the "father of immunology" and is known for introducing the concept of vaccination?
Option A	Louis pasteur
Option B	Robert Koch
Option C	Edward Jenner
Option D	Paul Ehrlich
Correct Option	C

Q. No. 33 0331033	Which class of antibodies is the most abundant in the bloodstream and plays a crucial role in neutralizing pathogens?
Option A	IgG
Option B	IgE
Option C	IgA
Option D	IgM
Correct Option	A

Q. No. 34 0331034	Which immune cells are responsible for engulfing and digesting pathogens, such as bacteria?
Option A	T cells
Option B	B cells
Option C	Macrophages
Option D	Natural Killer cells
Correct Option	C

Q. No. 35 0331035	Which organism is commonly used as a host for gene cloning experiments due to its ease of manipulation and rapid reproduction?
Option A	Humans
Option B	E. Coli (Escherichia coli)
Option C	Yeast
Option D	Mice
Correct Option	B

Q. No. 36 0331036	What is the term for a DNA molecule that results from the combination of DNA from different sources, often using a plasmid as a vector?
Option A	Recombinant DNA
Option B	Genomic DNA
Option C	Messenger DNA
Option D	Complementary DNA
Correct Option	A

Q. No. 37 0331037	Which term describes the process of introducing recombinant DNA into cells by using electrical pulses to create temporary pores in the cell membrane?
Option A	Electroporation
Option B	Polymerase Chain Reaction
Option C	DNA replication
Option D	Transfection
Correct Option	A

Q. No. 38 0331038	What is the primary goal of developing bispecific monoclonal antibodies?
Option A	To improve the taste of therapeutic antibodies
Option B	To target two different antigens simultaneously
Option C	To reduce antibody production costs
Option D	To enhance the specificity of ELISA assays
Correct Option	B

Q. No. 39 0331039	Which species is commonly used to produce monoclonal antibodies for therapeutic purposes?
Option A	Fishes
Option B	Mice
Option C	Pigs
Option D	Racoons
Correct Option	B

Q. No. 40 0331040	What is the primary function of anabolism in metabolism?
Option A	To release energy
Option B	To break down complex molecules
Option C	To build complex molecules from simpler ones
Option D	To produce secondary metabolites
Correct Option	C

Q. No. 41 0331041	Which receptor type is commonly associated with growth factor signaling on the cell surface?
Option A	G protein-coupled receptors (GPCRs)
Option B	Tyrosine kinase receptors
Option C	Intracellular receptors
Option D	Ion channel receptors
Correct Option	B

Q. No. 42 0331042	Which growth factor is known for its role in the development and maintenance of the nervous system?
Option A	Nerve growth factor (NGF)
Option B	Platelet-derived growth factor (PDGF)
Option C	Vascular endothelial growth factor (VEGF)
Option D	Insulin-like growth factor (IGF)
Correct Option	A

Q. No. 43 0331043	What are secondary metabolites?
Option A	Molecules produced in the primary metabolic pathways
Option B	Molecules produced as byproducts of cellular respiration
Option C	Molecules that are not essential for the growth and development of an organism
Option D	Molecules that are part of the cell membrane
Correct Option	C

Q. No. 44 0331044	What is the purpose of adding a pH controller to a bioreactor?
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Option A	To measure the number of cells in the culture
Option B	To regulate the acidity or alkalinity of the culture medium
Option C	To analyze DNA sequences
Option D	To monitor temperature
Correct Option	B

Q. No. 45 0331045	In large-scale cell culture, what is the purpose of inoculation?
Option A	To introduce a contaminating microorganism
Option B	To measure the pH level
Option C	To introduce a small amount of culture into the bioreactor to start the process
Option D	To measure the temperature
Correct Option	C

Q. No. 46 0331046	What is the primary target of bacteriophages?
Option A	Animal cells
Option B	Plant cells
Option C	Fungal cells
Option D	Bacterial cells
Correct Option	D

Q. No. 47 0331047	When an antibody binds to an antigen, what is the term for the resulting complex?
Option A	Agglutinin
Option B	immune complex
Option C	hybridoma
Option D	close mechanism
Correct Option	B

Q. No. 48 0331048	In the lysogenic cycle, integrated phage DNA is known as what?
Option A	Plasmids
Option B	Prophage
Option C	Ribosomes
Option D	Capsids
Correct Option	B

Q. No. 49 0331049	Which bioreactor design is often used for the production of monoclonal antibodies and therapeutic proteins in large quantities?
Option A	Air-lift bioreactor
Option B	Stirred-tank bioreactor
Option C	Chemostat bioreactor
Option D	Batch bioreactor
Correct Option	B

Q. No. 50 0331050	Which region of an antibody molecule is responsible for binding to antigens?
Option A	Constant region
Option B	V region
Option C	Fc region
Option D	Fab region
Correct Option	B

Q. No. 51 0331051	Which of the following is the primary focus of the microbial metabolism and enzymes?
Option A	Examining microbial strains' resistance to recombinant DNA methods
Option B	Investigating the production of heterologous proteins in microorganisms

Option C	Analyzing enzyme kinetics and their in vitro applications
Option D	Exploring the role of enzymes in food processing and medicine
Correct Option	B

Q. No. 52 0331052	Which of the following is NOT mentioned as a use of enzymes in the passage?
Option A	Food processing
Option B	Medicine
Option C	Electronics manufacturing
Option D	Diagnostics
Correct Option	C

Q. No. 53 0331053	What is ELISA primarily used for?
Option A	Food processing
Option B	Medicine
Option C	Diagnostics
Option D	Recombinant DNA methods
Correct Option	C

Q. No. 54 0331054	Which of the following is true regarding protein enzymes?
Option A	They are also called ribozymes
Option B	They are made up of amino acids
Option C	They do not require cofactors for activity
Option D	They primarily function in RNA synthesis
Correct Option	B

Q. No. 55 0331055	What distinguishes non-protein enzymes from protein enzymes?
Option A	Non-protein enzymes have a more complex structure
Option B	Non-protein enzymes are made up of lipids
Option C	Non-protein enzymes do not require cofactors
Option D	Non-protein enzymes are found only in plants
Correct Option	C

Q. No. 56 0331056	Which type of enzyme typically requires the presence of metal ions or coenzymes for catalytic activity?
Option A	Protein enzymes
Option B	Non-protein enzymes
Option C	Ribozymes
Option D	Both protein and non-protein enzymes
Correct Option	A

Q. No. 57 0331057	What is the primary function of protein enzymes in biological systems?
Option A	To act as structural components of cells
Option B	To speed up chemical reactions
Option C	To store genetic information
Option D	To transport oxygen in the blood
Correct Option	B

Q. No. 58 0331058	In a commensal relationship, one organism benefits while the other is neither benefited nor harmed. This is an example of:
Option A	Mutualism
Option B	Antibiosis
Option C	Parasitism
Option D	Commensalism

Correct Option	D
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Q. No. 59 0331059	In which industry are enzymes commonly used for tasks such as breaking down starches, proteins, and fats?
Option A	Electronics manufacturing
Option B	Automotive engineering
Option C	Food processing
Option D	Pharmaceutical production
Correct Option	C

Q. No. 60 0331060	Optical microscopy is limited in resolution due to:
Option A	The use of visible light.
Option B	The inability to focus on small objects.
Option C	Sample preparation requirements.
Option D	The presence of a vacuum.
Correct Option	A

Q. No. 61 0331061	In SEM (Scanning Electron Microscopy), how are images typically formed?
Option A	By detecting transmitted electrons through the sample.
Option B	By scanning a focused beam of electrons across the sample's surface.
Option C	By using fluorescent dyes to highlight specific structures.
Option D	By utilizing X-rays emitted by the sample.
Correct Option	B

Q. No. 62 0331062	What is the primary advantage of confocal microscopy over traditional optical microscopy?
Option A	Higher resolution
Option B	Simpler sample preparation
Option C	Lower cost
Option D	Faster image acquisition
Correct Option	A

Q. No. 63 0331063	What is the main limitation of TEM (Transmission Electron Microscopy)?
Option A	It cannot visualize small objects.
Option B	It requires a vacuum environment.
Option C	It can only be used for living samples.
Option D	It has a lower resolution compared to SEM.
Correct Option	D

Q. No. 64 0331064	What type of radiation is commonly used for sterilization, especially for disposable medical supplies and food packaging?
Option A	X-rays
Option B	Gamma rays
Option C	Ultraviolet (UV) radiation
Option D	Microwaves
Correct Option	B

Q. No. 65 0331065	What is the minimum temperature typically required for effective wet heat sterilization (autoclaving)?
Option A	100°C (212°F)
Option B	121°C (250°F)
Option C	160°C (320°F)
Option D	200°C (392°F)
Correct Option	B

Q. No. 66 0331066	What is the term used to describe the specific name or label assigned to a microbial strain for identification purposes?
Option A	Microbial species
Option B	Taxonomy
Option C	Nomenclature
Option D	Genetic variation
Correct Option	C

Q. No. 67 0331067	Which of the following is a common method for identifying and characterizing microbial strains within a species?
Option A	DNA fingerprinting
Option B	Chemical sterilization
Option C	UV radiation treatment
Option D	Gram staining
Correct Option	A

Q. No. 68 0331068	Which of the following is NOT a factor typically used to differentiate between microbial species?
Option A	Genetic analysis
Option B	Morphological characteristics
Option C	Metabolic properties
Option D	Geographic location
Correct Option	D

Q. No. 69 0331069	Why is it important to classify and identify microbial species and strains accurately in microbiology and biotechnology fields?
Option A	It's essential for their survival in the wild.
Option B	It helps ensure safety in laboratory environments.
Option C	It simplifies research efforts.
Option D	It has no practical significance.
Correct Option	B

Q. No. 70 0331070	Which microbial cell surface structure acts as a protective coat and can enhance the bacterium's ability to evade the host's immune system?
Option A	Cell membrane
Option B	Cytoplasm
Option C	Capsule
Option D	Ribosome
Correct Option	C

Q. No. 71 0331071	Which type of bacteria retains the crystal violet stain and appears purple under a microscope in the Gram staining process?
Option A	Gram-positive bacteria
Option B	Gram-negative bacteria
Option C	Archaea
Option D	Protozoa
Correct Option	A

Q. No. 72 0331072	In Gram-negative bacteria, the peptidoglycan layer is located in which part of the cell wall?
Option A	Outer membrane
Option B	Cytoplasmic membrane
Option C	Periplasmic space
Option D	Capsule
Correct Option	C

Q. No. 73 0331073	In the amphitrichous flagellar arrangement, flagella are found at:
Option A	One end of the cell.

Option B	Both ends of the cell.
Option C	All over the cell surface.
Option D	Random positions on the cell.
Correct Option	B

Q. No. 74 0331074	Lambert-Beer Law is used in spectrophotometry to relate the absorption of light by a solution to:
Option A	The concentration of the solute.
Option B	The color of the solution.
Option C	The temperature of the solution.
Option D	The volume of the solvent.
Correct Option	A

Q. No. 75 0331075	In eukaryotic cells, the genetic material is enclosed within a membrane-bound structure known as the:
Option A	Nucleoid
Option B	Nucleolus
Option C	Ribosome
Option D	Nucleus
Correct Option	D

Q. No. 76 0331076	Microorganisms that obtain their energy from organic compounds and their carbon from inorganic sources are classified as:
Option A	Autotrophs
Option B	Heterotrophs
Option C	Chemolithotrophs
Option D	Phototrophs
Correct Option	C

Q. No. 77 0331077	Microorganisms known as thermophiles thrive in:
Option A	Extremely cold environments.
Option B	Extremely hot environments.
Option C	Acidic environments.
Option D	Saline environments.
Correct Option	B

Q. No. 78 0331078	Alkalophiles are microorganisms that flourish in environments with:
Option A	Low pH (acidic conditions).
Option B	High pH (alkaline conditions).
Option C	High radiation levels.
Option D	Extreme pressure conditions.
Correct Option	B

Q. No. 79 0331079	Which of the following is a common characteristic of pathogenic microorganisms?
Option A	They always cause severe disease symptoms.
Option B	They are harmless to the host.
Option C	They can cause disease when the host's defenses are weakened.
Option D	They are exclusively found in extreme environments.
Correct Option	C

Q. No. 80 0331080	The term "virulence" refers to:
Option A	The ability of a microorganism to survive in extreme environments.
Option B	The severity of disease caused by a pathogen.
Option C	The resistance of a microorganism to antibiotics.

Option D	The ability of a microorganism to photosynthesize.
Correct Option	B

Q. No. 81 0331081	Nitrogen-fixing microbes play a crucial role in agriculture by:
Option A	Promoting soil acidity.
Option B	Increasing carbon dioxide levels.
Option C	Converting atmospheric nitrogen into a form that plants can use.
Option D	Enhancing water retention in soil.
Correct Option	C

Q. No. 82 0331082	Which enzyme is responsible for the conversion of atmospheric nitrogen gas (N ₂) into ammonia (NH ₃) during nitrogen fixation by microbes?
Option A	Nitrate reductase
Option B	Nitrogenase
Option C	Ammonium transporter
Option D	Nitrifying enzyme
Correct Option	B

Q. No. 83 0331083	Which scientist is credited with coining the term "cell" after observing cork cells through a microscope?
Option A	Antonie van Leeuwenhoek
Option B	Robert Hooke
Option C	Louis Pasteur
Option D	Gregor Mendel
Correct Option	B

Q. No. 84 0331084	Which of the following statements is a key component of the cell theory?
Option A	All cells have a nucleus.
Option B	All living organisms are composed of cells.
Option C	Only animal cells are capable of photosynthesis.
Option D	Viruses are considered living cells.
Correct Option	B

Q. No. 85 0331085	pre-cellular evolution refers to the hypothetical period before the emergence of cells when life may have existed as:
Option A	Multicellular organisms.
Option B	Complex eukaryotic cells.
Option C	Prebiotic molecules or simple structures.
Option D	Viruses
Correct Option	C

Q. No. 86 0331086	What is the term for the laboratory process of creating artificial cells from lipids or other molecules?
Option A	Biogenesis
Option B	Abiogenesis
Option C	Endosymbiosis
Option D	Protocell formation
Correct Option	D

Q. No. 87 0331087	Transduction is a genetic process in which genetic material is transferred between bacterial cells using:
Option A	Pili.
Option B	Phages (bacteriophages).
Option C	Plasmids.
Option D	Lipids.
Correct Option	B

Q. No. 88 0331088	Which of the following processes involves the uptake and incorporation of free DNA from the environment by a bacterial cell?
Option A	Conjugation
Option B	Transduction
Option C	Transformation
Option D	Replication
Correct Option	C

Q. No. 89 0331089	Replica plating is a technique used to:
Option A	Replicate entire bacterial colonies for further analysis.
Option B	Transfer plasmids between bacteria.
Option C	Amplify DNA fragments through PCR.
Option D	Analyze mutations in biochemical pathways
Correct Option	A

Q. No. 90 0331090	The "one gene-one enzyme hypothesis" proposed by Beadle and Tatum suggests that:
Option A	One gene codes for multiple enzymes.
Option B	One gene codes for one specific enzyme.
Option C	Genes do not play a role in enzyme production.
Option D	Enzymes are not involved in genetic processes.
Correct Option	B

Q. No. 91 0331091	In the Hardy-Weinberg equilibrium, which of the following conditions must be met for a population's gene frequencies to remain constant over generations?
Option A	No mutation, random mating, and no migration.
Option B	Mutation, non-random mating, and migration.
Option C	Mutation, random mating, and no migration.
Option D	No mutation, non-random mating, and migration.
Correct Option	A

Q. No. 92 0331092	In analytical chemistry, which of the following is NOT a fundamental step in the analytical process?
Option A	Sample preparation
Option B	Analysis
Option C	Interpretation of results
Option D	Sample disposal
Correct Option	D

Q. No. 93 0331093	Which chromatographic technique is primarily used for separating biomolecules based on their size and molecular weight?
Option A	Ion exchange chromatography
Option B	Reverse-phase chromatography
Option C	Gel permeation chromatography
Option D	Affinity chromatography
Correct Option	C

Q. No. 94 0331094	In ion exchange chromatography, separation is based on the differential adsorption of ions onto a charged stationary phase. What type of chromatography is reverse phase chromatography based on?
Option A	Size exclusion
Option B	Charge
Option C	Hydrophobicity
Option D	Affinity
Correct Option	C

Q. No. 95 0331095	FPLC stands for Fast Protein Liquid Chromatography. What is the main application of FPLC?
Option A	Separation of small organic molecules
Option B	Separation and purification of proteins
Option C	Separation of nucleic acids
Option D	Separation of lipids
Correct Option	B

Q. No. 96 0331096	Electroblotting is a technique used to transfer separated biomolecules from a gel onto a membrane. What is the primary purpose of electroblotting?
Option A	Visualization of biomolecules
Option B	Concentration of biomolecules
Option C	Isolation and analysis of specific biomolecules
Option D	Gel purification
Correct Option	C

Q. No. 97 0331097	In cell culture, the exponential growth phase is characterized by:
Option A	Rapid cell division and constant growth rate.
Option B	Declining cell numbers due to nutrient depletion.
Option C	A plateau phase with no further cell division.
Option D	Limited cell division and low growth rate.
Correct Option	A

Q. No. 98 0331098	Which of the following factors can affect the growth kinetics of cells in culture?
Option A	Temperature
Option B	pH
Option C	Nutrient availability
Option D	All of the above
Correct Option	D

Q. No. 99 0331099	Transfection is a laboratory technique used to introduce foreign DNA into animal cells. Which of the following is a common method for delivering DNA into cells?
Option A	PCR amplification
Option B	Electroporation
Option C	ELISA assay
Option D	Protein synthesis
Correct Option	B

Q. No. 100 0331100	Selective markers are often used to identify cells that have successfully taken up foreign DNA. Which of the following is NOT a commonly used selective marker in transfection experiments?
Option A	Antibiotic resistance genes
Option B	Fluorescent proteins
Option C	Luciferase reporter genes
Option D	Sodium chloride
Correct Option	D