

**SECTION 1 - SECTION 1**

**Question No.1**

The process of removal of plasmids from cell is called:

- curing
- restriction
- plasmolysis
- deplasmolysis

**Question No.2**

Secondary metabolites are generally produced in:

- Log phase
- Lag phase
- Stationary phase
- Decline phase

**Question No.3**

What will you use to improve the resolution of light microscope by 1.5 times:

- Blue light along with immersion oil between the sample and the objective
- Blue light along with glycerine between the sample and the objective
- Red light along with immersion oil between the sample and the objective
- Blue light

**Question No.4**

Which one of the following antibody gives allergic response

- IgE
- IgM
- IgA
- IgG

**Question No.5**

The process of Gram staining is based on the ability of bacterial cell wall

- \_\_\_\_\_
- To retain the crystal violet dye during solvent treatment

- To retain the Grams iodine
- To retain the Safranin dye
- To retain part of both dyes

### Question No.6

Which of the following is not an example of a monitoring study?

- Telephone interview
- Recording license plates in a parking lot
- Documenting interactions between customers and a call centre
- Counting traffic at an intersection

### Question No.7

Alleles are:

- Found only in homozygous condition
- Different forms of the same gene
- Found only in heterozygous condition
- Different forms of different genes

### Question No.8

Nitrogen fixation refers to the direct conversion of atmospheric nitrogen into

- 
- Ammonia
  - ATP
  - Glucose
  - Nitrate

### Question No.9

The technique of heating milk and milk products at 140-150°C for 1-3 seconds is called:

- Flash pasteurization
- High temperature short duration pasteurization
- Pasteurization
- Ultra high temperature sterilization

### Question No.10

Which microorganisms will grow well at 25 °C?

Mesophile

- 
- Psychrophiles
- Thermophiles
- Hyperthermophiles

**Question No.11**

In *Mucor* zygospores don't germinate immediately after their formation but undergo a resting phase. Meiosis in zygospore would occur:

- Before the zygospore becomes dormant
- During zygospore fusion
- In the germ sporangium
- During zygospore germination

**Question No.12**

Which of the following does not produce oxygen as a product of photosynthesis?

- Fungi
- Phytoplankton
- Purple sulfur bacteria
- Cyanobacteria

**Question No.13**

Arbuscular mycorrhizal (AM) represents an important association between plant and fungus helps the plant to absorb from the soil:

- Sulphate
- Carbonate
- Phosphate
- Sugars

**Question No.14**

Teichoic acids are typically found in

- Cell wall of Gram negative bacteria
- Outer membrane of Gram positive bacteria
- Outer membrane of Gram negative bacteria
- Cell wall of Gram positive bacteria

**Question No.15**

What will be the final concentration of a 10M solution if it is diluted four (4) times?

- 4 M
- 2.5 M
- 2 M
- 5 M

**Question No.16**

The working principle of an Autoclave follows

- Laws of Thermodynamics
- Archimedes Principle
- Universal Gas Laws
- Pascal's Law

**Question No.17**

Connecting link between glycolysis and kreb's cycle is:

- Pyruvic acid
- ATP
- Acetyl Co-A
- Oxalosuccinic acid

**Question No.18**

The DNA probe 3'GGCTTA will hybridize with which of the following:

- 3'CCGAAT
- 5'GGCTTA
- 5'CCGAAT
- 5'CCGUUA

**Question No.19**

Which of the following conditions would activate the toxin produced by *Bacillus thuringiensis*?

- Alkaline pH of the gut
- Acedic pH of the gut
- Mechanical intervention inside the insect gut
- High temperature

**Question No.20**

Which of the following is a product of transcription?

- tRNA
- mRNA
- rRNA
- ssDNA

**Question No.21**

The non symbiotic bacteria which fix nitrogen in the soil independently

- Rhizobium
- Bacillus
- Pseudomonas
- Azotobacter

**Question No.22**

Select the incorrect statement out of the following:

- Niche is the physical space occupied by an organism
- An ecosystem is composed only of biotic factors
- A species is a group of individuals capable of inbreeding
- The amount of light available in the ecosystem growth of plants there

**Question No.23**

Which fungal species is mostly used in genetics as model organism?

- Saccharomyces cerevisiae*
- Agaricus bipolaris*
- Neurospora crassa*
- Penicillium notatum*

**Question No.24**

The bacterial sore throat is caused by \_\_\_\_\_

- Staphylococcus aureus*
- Mycoplasma*
- Haemophilus spp.*
- Streptococcus pyogenes*

**Question No.25**

Which of the following compounds has the greatest amount of energy for a cell?

- CO<sub>2</sub>
- ATP
- Lactic acid
- Glucose

**Question No.26**

What is the solidifying agent commonly used in culture media preparation?

- Peptone
- Agarose
- Sodium chlorine
- Agar

**Question No.27**

A carbonated drink having pH 3 is \_\_\_\_\_times more acidic than distilled water:

- 10000
- 100
- 1000
- 4

**Question No.28**

Which mechanism is most prominent in creating genetic variability among prokaryotes?

- Vertical gene transfer
- Asexual reproduction
- Sexual reproduction
- Horizontal gene transfer

**Question No.29**

In gel electrophoresis, DNA molecules migrate from \_\_\_\_\_ to \_\_\_\_\_ ends of the gel.

- Positive to negative
- Acidic to basic
- Long to short distance
- Negative to positive

**Question No.30**

Crozier formation is observed in which of the following groups of fungi:

- Ascomycetes
- Deuteromycetes
- Phycomycetes
- Basidiomycetes

**Question No.31**

The concept of using microbes to clean up the environment is called \_\_\_\_\_

- Pasteurization
- Bioremediation
- Biolistics
- Fermentation

**Question No.32**

The mitotic metaphase differ from anaphase in having:

- Half number of chromosomes and half number of chromatids
- Same number of chromosomes and same number of chromatids
- Half number of chromosomes and same number of chromatids
- Same number of chromosomes and half number of chromatids

**Question No.33**

Causal organism of kala azar disease is

- Leishmania denovani*
- Corynebacterium diptheriae*
- Mycobacterium leprae*
- Clostridium botulinum*

**Question No.34**

Gram staining was introduced by

- Robert Hook
- Alfred Gram
- Louis Pasteur
- Christian Gram

**Question No.35**

The spherical shape of bacteria is

- Spirilla
- Cocci
- Pleomorphic
- Bacilli

**Question No.36**

The N-acetyl glucosamine and N-acetyl muramic acid of peptidoglycan are covalently linked by

- $\alpha$ - 1,4-glycosidic bond
- $\beta$ - 1,6-glycosidic bond
- $\beta$ - 1,4-glycosidic bond
- $\alpha$ - 1,6-glycosidic bond

**Question No.37**

The cocci arranged in pairs are,

- Diplococci
- Monococci
- Streptococci
- Tetrads

**Question No.38**

The central tendency is measured by:

- Only median
- Only mean
- Only mode and mean
- Mean, mode and median together

**Question No.39**

Generation time of Escherichia coli is \_\_\_\_\_

- 20 hours
- 2 minutes
- 20 days
- 20 minutes

**Question No.40**

Which of the following is not a gram positive bacterium?

*Streptococci*



- 
- Pseudomonas*
- Bacillus*
- Staphylococci*

**Question No.41**

What is the color of Gram negative bacteria on Gram staining?

- Green
- Purple
- Pink
- Violet

**Question No.42**

The enzyme, which hydrolyses the murein is \_\_\_\_\_

- Protease
- Tannase
- Lysozyme
- Peroxidase

**Question No.43**

Intragenic non-mendelian inheritance will include:

- Epistasis, multiple alleles, dominance
- Polygene, pleiotropism, codominance
- Codominance, multiple allele, incomplete dominance
- Polygene, codominance, multiple alleles

**Question No.44**

The slow ripening transgenic tomato is developed by using which one of the following techniques:

- Antisense RNA technology
- Transgene silencing technique
- Ribozyme technology
- Genetic engineering

**Question No.45**

The glyoxylate cycle is used by some microorganisms when the sole carbon is Nitrate

- 
- Glucose
- Acetate
- Carbon dioxide

**Question No.46**

The term facultative anaerobe refers to an organism that \_\_\_\_\_

- Requires less oxygen than it is present in air
- Uses oxygen when present or grows without oxygen when absent
- Killed by oxygen
- Does not use oxygen but tolerates it

**Question No.47**

The collapse of a cell due to water loss is called:

- Plasmolysis
- Osmoregulation
- Hydrolysis
- Halophiles

**Question No.48**

The structure responsible for bacterial motility is

- Flagella
- Capsule
- Sheath
- Pili

**Question No.49**

Hexose monophosphate pathway is also known as,

- Malate pathway
- Phosphogluconate pathway
- Fumerate pathway
- Oxaloacetate pathway

**Question No.50**

The specificity of an antibody is due to:

- The variable portion of the heavy and light chain

- The heavy chains
- The Fc portion of the molecule
- The light chains

**Question No.51**

Transfer of gene from one bacterium to another with the help of a phage is called:

- Induction
- Transduction
- Conjugation
- Transformation

**Question No.52**

For synthesis of DNA, enzyme required is

- Proteinase
- Ligase
- DNA polymerase
- RNA polymerase

**Question No.53**

Which of the following microorganism is classified as a member of archaebacteria?

- Mycoplasma
- Cyanobacteria
- Methanobacteria
- Trichomonads

**Question No.54**

Who proposed the three domain system of classification?

- R.H. Whittakar
- Carl Woese
- Bentham & Hooker
- Carl Linnaeus

**Question No.55**

Which of the following process does not generate ATP?

- The Calvin-Benson cycle

- Oxidative phosphorylation
- Phosphorylation
- Substrate level phosphorylation

**Question No.56**

Mycoplasmas do not have:

- Cell membranes
- Cell walls
- Ribosomes
- RNA

**Question No.57**

Rate of storage of organic matter by heterotrophs is called as:

- Net primary productivity
- Net productivity
- Secondary productivity
- Gross primary productivity

**Question No.58**

Which of the following act as the blueprint or template for the process of protein synthesis?

- tRNA
- DNA
- rRNA
- mRNA

**Question No.59**

Which of the following structure is present in prokaryotic cells?

- Chloroplasts
- Mitochondria
- Golgi structure
- Mesosome

**Question No.60**

Proteins produced by bacteria to inhibit the growth of other strains of the same organism are called:

- Antibiotics

- Vaccines
- Bacteriocins
- B factors

**Question No.61**

Peptidoglycan is also known as

- N-acetyl glucosamine
- Murein
- Diaminopimelic acid
- N-acetyl muramic acid

**Question No.62**

In aerobic respiration, the terminal electron acceptor is

- Hydrogen
- Oxygen
- Nitrate
- Nitrogen

**Question No.63**

Viruses require \_\_\_\_\_ for their multiplication

- Animals
- Plants
- Living cells
- Bacteria

**Question No.64**

The non-viable mutations are called:

- Non-sense mutation
- Frameshift mutation
- Lethal mutation
- Missense mutation

**Question No.65**

Humoral theory of immunity was given by:

- Richet
- Ehrlich

- Burnet
- Jerne

**Question No.66**

Which of the following is concerned with the management and analysis of biological data using computers?

- Bio-physics
- Biomechanics
- Genomics
- Bioinformatics

**Question No.67**

In prokaryotic cells, the ribosomes are,

- 50S
- 60S
- 70S
- 80S

**Question No.68**

A cluster of flagella at the one end of the bacterium is called as \_\_\_\_\_

- Lophotrichous
- Peritrichous
- Amphitrichous
- Monotrichous

**Question No.69**

Which is true when a  $F^+$  cell crosses with a  $F^-$  cell?

- $F^+$  cells become Hfr cells
- $F^+$  cells become  $F^-$  cells
- $F^-$  cells become  $F^+$  cells
- $F^-$  cells become Hfr cells

**Question No.70**

Which of the following has peptidoglycan as a major constituent of cell wall?

- Gram positive bacteria
- Fungi

- Algae
- Gram negative bacteria

**Question No.71**

Which one of the followings is not an essential amino acid?

- Methionine
- Cysteine
- Histidine
- Lysine

**Question No.72**

The enzymes for glycolysis are located \_\_\_\_\_

- On the outer membrane of the chloroplast
- On the inner surface of the cell membrane
- In the cytoplasm
- On the inner membrane of the mitochondrion

**Question No.73**

Exploratory research can be completed in all of the following situations except when

- the range and scope of management decisions are established
- additional research is necessary
- investigative questions are defined
- the major dimensions of the research task are established

**Question No.74**

The organism which grows at high salt concentration is called as \_\_\_\_\_

- Mesophilic
- Halophilic
- Thermophilic
- Psychrophilic

**Question No.75**

When a temperate phage incorporates its DNA into the host cell's genome, it is called a:

- Prophage
- Lytic phase

- Lysophage
- Lambda phase

**Question No.76**

One gram of soil sample has been diluted to  $10^{-5}$  and 0.5 ml of it has been inoculated in a petri plate containing agar media. The number of colonies recorded in the plate after 24hrs incubation is 60. The CFU count will be:

- $120 \times 10^{-5}/g$
- $60 \times 10^{-5}/g$
- $60 \times 10^5/g$
- $120 \times 10^5/g$

**Question No.77**

The lipid content in cell wall of acid fast bacteria is

- 30%
- 75%
- 60%
- 45%

**Question No.78**

Which of the following fungi on infecting crop roots can improve their uptake of phosphorous and other nutrients?

- Candida torulopsis*
- VAM
- Saccharomyces cerevisiae*
- Aspergillusniger*

**Question No.79**

Which of the following is a substitute for crystal violet used in Gram staining procedure?

- Bromocresol green
- Phenolphthaleine
- Methylene blue
- Safranin

**Question No.80**

PCR based DNA amplification use which of the following molecular markers?



- RAPD, SSR and RFLP
- SSR, RFLP and RAPD
- RFLP, SSR, AFLP
- AFLP, SSR and RAPD

**Question No.81**

Vinegar is obtained from sugar by:

- Salmonella*
- Nitrosomonas*
- Lactobacillus*
- Acetobacter*

**Question No.82**

The process of gentle heating is called as,

- Fermentation
- Mineralization
- Pasteurization
- Autoclave

**Question No.83**

Mac-Conkey medium is an example of ,

- Differential medium
- Enriched medium
- Basal medium
- Transport medium

**Question No.84**

What will you do to elute target proteins from an affinity chromatography matrix?

- Wash the column with buffers
- Add soluble ligand that would compete with the affinity tagged protein for binding to the column
- Decrease salt concentrations
- Increase salt concentrations

**Question No.85**

Which of the following would you use if you wanted to reduce the number of microorganisms to a level that is considered safe?

- Sanitization
- Disinfection
- Antiseptic
- Sterilization

**Question No.86**

Which one of the following is an ex-situ conservation method for protection of endangered species?

- Wildlife sanctuaries
- National park
- Biosphere reserves
- Cryopreservation

**Question No.87**

Penicillin is specific for bacteria because it:

- Inhibits protein synthesis
- Inhibits nucleic acid synthesis
- Inhibits cell wall synthesis
- Injures the plasma membrane

**Question No.88**

Which of the following statements is incorrect?

- Fluorescence microscopy is used to detect microorganisms using stained monoclonal antibodies
- Acid fast stains interact with the waxy structures of the cell wall of *Mycobacterium* sp.
- Transmission electron microscope has practical magnification of greater than 100,000X
- The confocal microscope uses series of images through a three dimensional object that is used for construction of one dimensional image of the object

**Question No.89**

Who coined the term enzyme first?

- Buchner
- Kuhne
- Pasteur
- Liebig

**Question No.90**

A leaf appears green in day light, what would it appear as when observed in red light:

- Red
- Blue
- Black
- Green

**Question No.91**

Who introduced the method of vaccination to prevent smallpox?

- Alexander Fleming
- Joseph Lister
- Robert Koch
- Edward Jenner

**Question No.92**

Research design strategy includes all of the following except:

- instrument development
- data collection design
- sampling design
- data analysis

**Question No.93**

Polymerase chain reaction basically consists of \_\_\_\_\_

- Five steps
- Three steps
- Two steps
- Four steps

**Question No.94**

Which histone protein is not part of a nucleosome?

- H2A
- H1
- H4
- H2b

**Question No.95**

Psychrophilic halophile would be a microbe that requires \_\_\_\_\_

- Warm temperature and increased amounts of pressure
- Cold temperature and increased amounts of salt
- Cold temperature and the absence of oxygen
- Warm temperature and increased amount of acid

**Question No.96**

The inactive protein part of enzyme is \_\_\_\_\_

- Haloenzyme
- Cofactor
- Enzyme
- Apoenzyme

**Question No.97**

Mycorrhizae are the fungi found:

- Associated with leaves
- Associated with lichen
- Associated with stems
- Association with roots

**Question No.98**

The reaction, where small precursor molecules are assembled into larger organic molecules is referred as,

- Reverse reaction
- Metabolism
- Anabolism
- Catabolism

**Question No.99**

Which one of the following acts as mordant in Gram's staining of bacteria?

- Crystal violet
- Safranin
- Ethanol
- Iodine

**Question No.100**



A rare endangered and endemic taxa can be observed in:

- Temperate forests
- Tropical forests
- Buffer zone
- Sacred grooves