

PU M Sc Microbiology

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Nitrogen fixation in root nodule begins after the formation of:-

- Bacteriod
- Infection thread
- Hartig net
- Symbiosome

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One virus species preventing multiplication of a second virus is called:-

- supervision
- Permutation
- Mutation
- Viral interference

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The standard notation for radioisotope production is $^{14}\text{N}(n,p)^{14}\text{C}$, Radioisotope produced and particles emitted in this process are:-

- $^{14}\text{C}, n$
- $^{14}\text{C}, p$
- $^{14}\text{N}, p$
- $^{14}\text{N}, n$

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Glucose labeled with ^{14}C at C-1 is added to a solution containing the enzymes and cofactors of the oxidative phase of the pentose phosphate pathway. The radioactive label will be observed at:-

- C4 of ribulose 5-phosphate
- C1 of ribulose 5-phosphate
- C5 of ribulose 5-phosphate
- None of the carbon of ribulose 5-phosphate will have radiolabel

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The mechanism that cause a gene to move from one linkage group to another is:-

- Translocation
- Crossing over
- Duplication
- Inversion

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Which of the following histone proteins are not involved in nucleosome assembly?

- H2B
- H2A
- H1
- H4

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Amoxicillin is combined with clavulanic acid to inhibit:-

- DNA gyrase
- lactamase enzymes
- Protein synthesis
- Cell synthesis

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Is the only class of immunoglobulin that can pass through the placenta:-

- IgA
- IgG
- IgM
- IgE

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An example of an artificial virus is:-

- Vaccinia virus
- Mumps virus
- Reovirus
- Rabies virus

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On action of glycogen phosphorylase, a molecule of _____ is released in one step.

- Glucose 6 phosphate
- Glucose
- Glucose 1 phosphate
- Inorganic phosphate

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A disease in which a pathogen remains inactive for a long period of time before becoming active is termed a:-

- Subacute disease
- Latent disease
- Chronic disease
- Acute disease

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Is not a factor responsible for the pathogenicity of virulent *Staphylococcus aureus*:-

- B-lactamase
- hyaluronidase
- M-protein
- coagulase

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The consensus sequence required for the initiation of translation is termed:-

- Pribnow Box
- Shine Dalgarno Sequence
- TATA Box
- Kozak Sequence

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In a non-obligatory interaction if both partners are mutually benefitted it is called as:-

- Cooperation
- Commensalism
- Competition
- Mutualism

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Specificity of an enzyme depends on:-

- Km
- Turnover number
- Active site
- Vmax

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The source of one of the nitrogen of Urea is:-

- Glutamine
- Glycine
- Arginine
- NH_4^+

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The subunits of IL-4 receptor are:-

- a) IL-4R α and γ C
- b) IL-4R α and β
- c) IL-4R α and IL-13R
- d) both (a) and (c)

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Genes or proteins that display common activity but not common origin are termed as:-

- Heterologs
- Homologs
- Paralogs
- Analogs

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Segmented RNA is seen in:-

- Coxsackie B virus
- Rabies virus
- Influenza virus
- Rabies Virus

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Heterophile antibodies are found in:-

- Infectious mononucleosis
- Rickettsial Pox
- Epidemic typhus
- Endemic typhus

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The aminotransferases require which prosthetic group?

- Tetrahydrofolic acid
- NADH
- Pyridoxal phosphate
- Biotin

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Which of the following vaccine types is commonly given with an adjuvant?

- An attenuated vaccine
- A chemically killed vaccine
- An immunoglobulin
- A modified live vaccine

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Virusoid is not a:-

- ribozyme
- satellite nucleic acid
- non coding RNA
- viroid with capsid

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Restriction endonucleases from two different organisms that recognise the same DNA sequence for cleavage are called:-

- Isoschizomers
- Concatamers
- Palindomes
- Isozymes

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Japanese encephalitis is caused by:-

- Arbo Viruses
- Ortho myxo Viruses
- Toga Viruses
- Para myxo Viruses

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If to 50 μ l of 0.5M solution A, water is added to get a final volume of 2 ml, what is the final concentration?

- 12.5 mM
- 50 mM
- 25 mM
- 1 mM

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Which of the following is true about influenza?

- Nucleocapsid is protective
- Large epidemics is due to antigenic drift
- Has double stranded RNA
- Neuraminidase and hemagglutination are specific

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The conformational changes (Loose, Tight and Open) in Nucleotide binding site of F1 complex of ATP synthase occurs due to rotation of _____ subunit of F1 complex.

- δ
- β
- γ
- α

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Which of the following is a natural inducer of *lac* operon in *E. coli*?

- IPTG
- Allolactose
- Lactose
- Galactose

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Which of the following processes does not take place in the 5'→3' direction?

- Nick translation
- DNA replication
- Transcription
- RNA editing

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Major antigenic change in influenza virus that results probably due to gene reassortment from different influenza A viruses infecting the same host is called:-

- antigenic shift
- antigenic variation
- antigenic drift
- antigenic modulation

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A characteristic property of stem cell is:-

- Metastasis
- Self renewal
- Terminal differentiation
- Senescence

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Point mutation in which there is an addition or deletion of a base pair is termed as:-

- Deletion
- Transversion
- Frame shift mutation
- Transition

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The virus which does cause hemagglutination of human erythrocytes is:-

- Reovirus
- Enterovirus
- Rubella
- Myxovirus

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Match the following:-

Disease	Causative agent
a) Traveler's diarrhea	i) <i>Bordetella pertussis</i>
b) Whooping cough	ii) <i>Escherichia coli</i>
c) Plague	iii) <i>Clostridium perfringens</i>
d) Gas gangrene	iv) <i>Yersinia pestis</i>

Codes:-

- (a)-ii, (b)-iii, (c)-iv, (d)-i
- (a)-i, (b)-ii, (c)-iii, (d)-iv
- (a)-ii, (b)-i, (c)-iv, (d)-iii
- (a)-iv, (b)-ii, (c)-iii, (d)-i

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Ribosomal subunits are assembled in:-

- Nucleus
- Nucleolus
- Endoplasmic reticulum
- Cytoplasm

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Symptoms of acute aflatoxicosis:-

- a) Osteogenic sarcoma
- b) Lymphatic leukemia
- c) Malaise & Anorexia
- d) Both (a) and (b)

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The first screening test commonly employed for HIV:-

- immunoperoxidase test
- ELISA
- Immunofluorescence
- complement fixation test

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Which of the following enzyme plays role in ethanol fermentation?

- Pyruvate carboxylase
- Isocitrate dehydrogenase
- Pyruvate decarboxylase
- Pyruvate dehydrogenase

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Branched heteropolysaccharide contains:-

- An additional protein molecule
- Two or more different monosaccharide units

- More than one monosaccharide units
- More than one glycosidic linkage

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The nucleotide sequence of DNA involved in binding to a transcription factor can be determined by:-

- S1 nuclease
- Northern blotting
- Southern blotting
- DNA footprinting

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Cyst is caused by:-

- Staphylococcus
- Gonococcus
- Streptococcus
- Candida

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Drug resistance to sulphonamides is due to:-

- Folic acid synthetase
- Production of PABA
- Drug alteration
- Low affinity for drug synthesis by bacteria

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Which of the following amino acids is optically inactive?

- Proline
- Methionine
- Glycine
- Tryptophan

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The carbon skeleton of a fatty acid is 18:1(Δ^9). It means:-

- The fatty acid is unsaturated with 9 C=C bonds
- The fatty acid is unsaturated with 1 C=C bond between C8 and C9
- The fatty acid is unsaturated with 1 C=C bond between C9 and C10
- The fatty acid is saturated

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In an inducible operon, the genes are:-

- always expressed
- usually expressed unless a signal turns them "off"
- never expressed
- usually not expressed unless a signal turns them "on"

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Which of the virus requires a helper virus for replication?

- Hepatitis C virus
- Hepatitis D virus
- Hepatitis E virus
- Hepatitis A virus

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1 Microcurie = _____ Becquerrels.

- 3.7×10^{10}
- 3.7×10^7
- 1
- 3.7×10^4

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RT-PCR is used in diagnosis of All except:-

- Astrovirus
- Adenovirus
- Polio virus
- Rotavirus

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Rocky mountain spotted fever is caused by:-

- Chlamydia
- Mycoplasma
- Listeria
- Rickettsia

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When pathogenic bacterial cells lose the ability to make adhesion, they:-

- Increase in virulence
- Produce endotoxin
- Become avirulent
- Absorb endotoxin

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In which stage of the cell cycle, the diploid cell will have twice the amount of DNA as the gamete?

- M phase
- G1 phase
- G2 phase
- S phase

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The most definitive diagnostic method for polio is:-

- Virus isolation from CSF
- Serological diagnosis
- Virus isolation from feces or throat
- Virus isolation from blood

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Live attenuated vaccines are available against the following viruses except:-

- Varicella Zoster virus
- Yellow fever virus
- Influenza virus
- Rubella virus

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Hepatitis B is not transmitted by:-

- Congenital transmission
- Feco-oral route
- Blood transfusion
- Sexual contact

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The form of nitrogen that is most usable in plants is:-

- Nitrite
- Ammonium ions

- Ammonia
- Molecular nitrogen

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A patient contracted athlete's foot after long-term use of a medication. His physician explained that the malady was directly related to the medication. Such infections are termed:-

- Exogenous infection
- Endogenous infection
- Iatrogenic infection
- Nosocomial infection

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Resistant to drugs in tuberculosis develops by:-

- Mutation
- Transduction
- Transformation
- Conjugation

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Trisomic can be represented as:-

- $n-1$
- $2n+2$
- $2n+1$
- n

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The enzyme inhibition in which the V_{max} stays the same while K_m is altered:-

- Uncompetitive
- Non-competitive
- Allosteric
- Competitive

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The membrane lipid molecules assemble spontaneously into bilayers when placed in water and form a closed spherical structure known as:-

- Endosome
- Liposome

- Peroxisome
- Lysosome

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The current genus name of a saccharolytic group of Bacteroides is:-

- Ascomyces
- Sccharomyces
- Porphyromonas
- Pseudomonas

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Pasteurization kills _____ present in milk.

- Only pathogenic bacteria-Controversy answer
- All bacteria
- Multidrug resistant bacteria
- All bacteria and bacterial spores

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Pre-tRNAs are synthesized by:-

- RNA polymerase II
- RNA polymerase I
- aminoacyl tRNA synthetase
- RNA polymerase III

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The scientist who received the Nobel Prize for the discovery of jumping gene is _____.

- James Watson
- Andrew Fire
- Karry Mullis
- Barbara McClintock

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The *lacZ* gene in lac operon codes for _____.

- lactate dehydrogenase
- β -galactosidase
- lactamase
- gelatinase

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Lac operon is an example of:-

- Overlapping operon
- Repressible operon
- Attenuation operon
- Inducible operon

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Pick out the vector using in human Genome project:-

- Cosmid vectors
- Yeast artificial chromosomes
- Yeast episomal plasmids
- Phagemid vector

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Which subunit of the ribosome binds to the 5' cap in eukaryotic mRNA?

- 50s
- 60s
- 30s
- 40s

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Which of the following scientists of Indian origin received Nobel Prize in 2009 for his research on ribosomes?

- V. Ramanujam
- G. N. Ramchandran
- V. Ramakrishanan
- Hargobind Khorana

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The base analog 2-aminopurine pairs with thymine, and can occasionally pairs with cytosine. The type of mutation induced by 2-aminopurine is:-

- Transition
- Nonsense
- Deletion
- Transversion

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Why the bacterium *Treponema pallidum* is difficult to culture?

- Because it lacks the genes needed for glycolysis and oxidative phosphorylation
- Because it lacks the genes needed for TCA cycle and oxidative phosphorylation
- Because it lacks the genes needed for urea cycle and oxidative phosphorylation
- Because it lacks the genes needed for fatty acid oxidation and oxidative phosphorylation

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All of the following processes occur in the mitochondria of mammalian cells EXCEPT:-

- Fatty acid biosynthesis
- DNA synthesis
- The citric acid cycle
- Beta oxidation of fatty acids

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The first synthetic bacterium was generated on the genome of:-

- Bacillus subtilis
- Mycoplasma
- Pseudomonas putida
- E. coli

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Which of the following is a non-composite transposon?

- Tn9
- Tn5
- Tn10
- Tn3

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Which of the following gives information about conformational change in proteins?

- CD/ORD
- Mass spectrometry
- FPLC
- HPLC

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Anticodons are present on:-

- rRNA
- mRNA
- snRNA
- tRNA

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One principal function of complement is to:-

- cross link allergens
- inactivate perforins
- phagocytize antigens
- bind antibodies attached to cell surfaces and to lyse these cells

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The Shine-Dalgarno sequence in prokaryotes recognises the sequence from:-

- 18s rRNA
- 23s rRNA
- 16s rRNA
- 5s rRNA

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To which of the following organelles co-translational transport of proteins takes place?

- Lysosome
- Endoplasmic Reticulum
- Nucleus
- Mitochondria

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Bacillus thuringiensis (Bt) strains have been used to design novel:-

- Bio-insecticidal plants
- Biofertilizers
- Bio-metallurgical techniques
- Bio-mineralization processes

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Flavr Savr tomato is an example of a:-

- genetically modified food
- probiotic food
- fermented food
- pasteurized food

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Which of the following is false about the *E. coli* Lac operon?

- It is an example of negative control
- The presence of lactose acts as an inducer
- It is polycistronic
- The repressor binds to the promoter

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The technique involved in comparing the DNA components of two samples is known as:-

- Recombinant DNA technology
- Polymerase chain reaction
- Genetic finger printing
- Monoclonal antibody techniques

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In protein synthesis termination codons include all except:-

- UAA
- UGA
- UAG
- UGG

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The resolution power of the compound microscope is:-

- 0.2 micron
- 0.2 millimeter
- 0.2 Angstrom units
- 0.2 centimeter

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All of the following are true of antigen EXCEPT which one of the following?

- They contain epitopes
- They contain paratopes
- They can elicit an immune response
- They will react with antibodies

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Repressor molecules bind to the:-

- Promoter
- Operator
- Hormone response element
- Enhancer

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Artificial transformation in laboratory is carried out by treating the cells with:-

- NaCl
- MgCl₂
- CaCl₂
- HCl

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Fusion of two dissimilar gametes is called:-

- dichogamy
- allogamy
- fertilization
- autogamy

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An enhancer element is:-

- an mRNA-degrading enzyme
- a regulatory protein
- an mRNA transcript
- a specific nucleotide sequence in DNA

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_____ is believed to be a major control point in the regulation of gene expression in eukaryotes.

- mRNA transport
- Regulation of transcription
- Alternative site splicing
- mRNA degradation

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Genus of mold reported to contain species capable of producing aflatoxins:-

- Fusarium
- Brettanomyces
- Aspergillus
- Geotrichum

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Teichoic acids are:-

- found in the walls of Gram positive bacteria
- acids which make up the outer wall of Gram negative bacteria
- receptors for phages
- responsible to influence the permeability of the membrane

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Which of the following is an example of RNA virus?

- T4 phage
- Tobacco mosaic virus
- Adeno virus
- SV 40

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An example of gene therapy is:-

- production of injectable hepatitis B vaccine
- production of vaccines in food crops like potatoes which can be eaten
- production of test tube babies by artificial insemination and implantation of fertilized egg
- the introduction of a gene for adenosine de-aminase in persons suffering from Severe Combined Immunodeficiency

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DNA replicates during:-

- G1 – phase
- G2 – phase
- S – phase
- M – phase

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Which of the following refers to the addition of microorganisms to the diet in order to provide health benefits beyond basic nutritive value?

- Antibiotics
- Probiotics
- Adjuvants
- Synbiotics

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Histidine, Leucine, and Methionine are examples of:-

- Moderately essential amino acids
- Essential amino acids
- Very essential amino acids
- Non-essential amino acids

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Tikka disease is a major pathogenic threat in:-

- Wheat
- Apple
- Sorghum
- Groundnut