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**B.Sc Sem IV**  
**Question Bank Paper II**

Q. The tendency of an offspring to resemble its parent is known as  
(a). Variation  
(b). Heredity  
(c). Resemblance  
(d). Inheritance

Q. Who is known as the “Father of Genetics”?  
(a).Morgan  
(b).Mendel  
(c).Watson  
(d).Bateson

Q. The alternate form of a gene is  
(a).Alternate type  
(b).Recessive character  
(c).Dominant character  
(d). Allele

Q. The genotypic ratio of a monohybrid cross is  
(a). 1:2:1  
(b). 3:1  
(c). 2:1:1  
(d). 9:3:3:1

Q. The crossing of F1 to either of the parents is known as  
(a). Test cross  
(b). Back cross  
(c). F1 cross  
(d). All of the above

Q. Which of the following statements is true regarding the “law of segregation”?  
(a). Law of segregation is the law of purity of genes  
(b). Alleles separate from each other during gametogenesis  
(c). Segregation of factors is due to the segregation of chromosomes during meiosis  
(d). All of the above

Q. Homozygosity and heterozygosity of an individual can be determined by  
(a). Back cross  
(b). Self-fertilization  
(c).Test cross  
(d). All of the above

Q. An exception to Mendel’s law is  
(a).Independent assortment

- (b). Linkage
- (c). Dominance
- (d). Purity of gametes

Q. Pea plants were used in Mendel's experiments because

- (a). They were cheap
- (b). They had contrasting characters
- (c). They were available easily
- (d). All of the above

Q. The smallest unit of genetic material which produces a phenotypic effect on mutation is

- (a). Muton
- (b). Gene
- (c). Recon
- (d). Nucleic acid

Q. Mendel's findings were rediscovered by

- (a). Correns
- (b). De Vries
- (c). Tschermak
- (d). All

Q. Alleles are

- (a). Alternate forms of genes
- (b). Linked genes
- (c). Chromosomes that have crossed over
- (d). Homologous chromosomes

Q. When the activity of one gene is suppressed by the activity of a non-allelic gene, it is known as

- (a). Pseudo-dominance
- (b). Hypostasis
- (c). Epistasis
- (d). Incomplete dominance

Q. Cystic fibrosis is

- (a). Sex-linked recessive disorder
- (b). Autosomal dominant disorder
- (c). Autosomal recessive disorder
- (d). Sex-linked dominant disorder

Q. 9:7 ratio in the F<sub>2</sub> generation represents

- (a). Incomplete dominance
- (b). Co-dominance
- (c). Epistasis
- (d). Complementary interaction

Q. A small amount of lethal mutation is always present in the population due to

- (a). Positive selection
- (b). Negative selection

- (c). Frequency-dependent selection
- (d). Mutation-selection balance

Q. If a plant with genotype AaBb is self-fertilized, the probability of getting AABB genotype will be (A and B are not linked)

- (a).  $\frac{1}{2}$
- (b).  $\frac{1}{4}$
- (c).  $\frac{1}{8}$
- (d).  $\frac{1}{16}$

Q. How many phenotypes can occur in the human blood group ABO with alleles  $I^A I^B i$ ?

- (a). 2
- (b). 3
- (c). 4
- (d). 1

Q. The geometrical device that helps to find out all the possible combinations of male and female gametes is known as

- (a). Bateson Square
- (b). Mendel Square
- (c). Punnett Square
- (d). Mendel's Cube

Q. Which term represents a pair of contrasting characters?

- (a). Heterozygous
- (b). Homozygous
- (c). Codominant genes
- (d). Allelomorphs

Q. After cross-fertilization of true-breeding tall and dwarf plants, the F1 generation was self-fertilized. The resultant plants have genotype in the ratio

- (a) 1:2:1 (homozygous tall : heterozygous tall : dwarf)
- (b) 1:2:1 (heterozygous tall : homozygous tall : dwarf)
- (c) 3:1 (tall : dwarf)
- (d) 3:1 (dwarf : tall)

Q. Which of the following characteristics of pea plants was not used by Mendel in his experiments?

- (a) seed colour
- (b) seed shape
- (c) pod length
- (d) flower position

Q. Mendel took \_\_\_\_\_ contrasting characteristics of pea plants.

- (a) eight
- (b) seven
- (c) six
- (d) five

Q. If both genotype and phenotype shows the same ratios of 1:2:1 in the F<sub>2</sub> generation, it shows

- (a) incomplete dominance in monohybrid cross
- (b) complete dominance in monohybrid cross
- (c) dihybrid cross
- (d) co-dominance

Q. Test cross determines

- (a) whether two traits are linked or not
- (b) the genotype of F<sub>2</sub> plant
- (c) whether the two species will breed successfully or not
- (d) number of alleles in a gene

Q. Genotype of dominant plant can be determined by

- (a) pedigree analysis
- (b) back cross
- (c) test cross
- (d) dihybrid cross

Q. Test cross is a

- (a) cross between two recessive homozygotes
- (b) cross between dominant homozygote and heterozygote
- (c) cross between two F<sub>1</sub> hybrids
- (d) cross between an F<sub>1</sub> hybrid and recessive homozygote

Q. Lack of independent assortment of two genes is due to

- (a) recombination
- (b) crossing over
- (c) linkage
- (d) repulsion

Q. The cross where the sources of gametes are reversed is called

- (a) reciprocal cross
- (b) reverse cross
- (c) dihybrid cross
- (d) test cross

Q. In Mendel's law of segregation, alleles sort \_\_\_\_\_ because the gene is located on a specific \_\_\_\_\_.

- (a) independently; chromosome
- (b) in pairs; chromosome
- (c) independently; gamete
- (d) in groups; gamete

Q. The genes for the seven characters chosen by Mendel are located on

- (a) four chromosomes
- (b) five chromosomes
- (c) six chromosomes
- (d) seven chromosomes

Q. The breeding in which the parents would produce offspring that would carry the same phenotype, means that the parents are homozygous for every trait is:

- (a) true breed
- (b) F<sub>2</sub> cross
- (c) reciprocal crosses
- (d) All of the above

Q. The cross involves two pairs of genes and two traits, therefore the cross is:

- (a) hybrids
- (b) dihybrid
- (c) None

Q. The Phenomenon of two or more than two genes affecting the expression of each other is called \_\_\_\_\_

- (a) Crossing over
- (b) Pairing
- (c) Gene interaction
- (d) Linkage

Q. Which of the following ratio shows complementary gene interaction?

- (a) 9:7
- (b) 15:1
- (c) 1:2:1
- (d) 9:3:3:1

Q. Which of the following does not show Mendel's law of inheritance?

- (a) Masking gene interaction
- (b) Epistasis
- (c) Supplementary gene interaction
- (d) Codominance

Q. Crossing of two white flowers gives a colored flower, this shows complementary gene interaction.

- (a) True
- (b) False

Q. What is epistasis?

- (a) Type of linkage
- (b) Masking or modifying gene effect
- (c) Upper portion of a chromosome
- (d) Group of genes

Q. Choose the correct ratio, which shows the masking gene interaction?

- (a) 12:3:1
- (b) 9:3:4
- (c) 1:2:1
- (d) 9:7

Q. Linkage \_\_\_\_\_ as the distance between two genes \_\_\_\_\_

- (a) Decreases, decreases
- (b) Unaffected, Decreases
- (c) Decreases, Increases
- (d) Increases, Increases

Q. In *Drosophila* males there is complete linkage. What is the reason behind this?

- (a) The genes are very closely located
- (b) Coupling theory
- (c) No synapsis
- (d) Unknown reason

Q. The tendency of linkage is directly proportional to the rate of crossing over between two genes.

- (a) True
- (b) False

Q. Linkage results in \_\_\_\_\_

- (a) Formation of more Dominant phenotype
- (b) Formation of more Wild phenotype
- (c) Formation of more parental phenotype
- (d) Formation of more recombinant phenotype

Q. If you suddenly observe linkage between two genes that are present in two chromosomes, this can be due to \_\_\_\_\_

- (a) Coupling
- (b) Translocation
- (c) Inversion
- (d) Non-homologous end joining

Q. Accurate mapping of genes can be done using \_\_\_\_\_

- (a) Two point mapping
- (b) Three point mapping
- (c) Single gene mapping
- (d) None of the mentioned

Q. Recombination occurs in \_\_\_\_\_

- (a) Single strand stage
- (b) Two strand stage
- (c) Three strand stage
- (d) Four strand stage

Q. Double crossovers can involve two, three or four strands at a time. What will be the resultant percentage of recombined genes to normal genes in between which recombination occurred, taking all three types in consideration?

- (a) 0%
- (b) 50%
- (c) 70%
- (d) 90%

Q. Another name for organic matter present in soil

- (a).fertilizers
- (b). humus
- (c). liter
- (d). none

Q.Soil PH for nursery soil should be

- (a).5.5-6.5
- (b). 7.0-7.5
- (c). 4.5-5.5
- (d). 7.5-8.0

Q. What is the ratio of soil, compost and sand in the pot?

- (a).3:1:1
- (b). 1:1:2
- (c). 2:1:3
- (d). 1:1:1

Q. Type of nursery that produces plants throughout the year:

- (a).small nursery
- (b). permanent nursery
- (c). big nursery
- (d). temproray nursery

Q. What do you mean by weeds?

- (a).tools
- (b). pesticides
- (c). unwanted plants
- (d). decorative plants

Q.What is the first step for preparing setup for Floriculture

- (a) Marketing
- (b). Soil sterilization
- (c). Pesticide selection
- (d). Watering

Q. For preparation of propagation beds sand must be sterilized with

- (a). chloroform
- (b). Pesticides
- (c). Insecticides
- (d). Formaldehyde

Q. While selecting site for Nursery, which of the following are necessary

- (a). Topography and climate
- (b).Surrounding and people

- (c).Both a and b
- (d). None

Q. Artificial vegetative propagation is

- (a).cutting
- (b). tuber
- (c). bulb
- (d). rhizome

Q. Seasonal plants propagates with

- (a).cuttings
- (b). layering
- (c). seeds
- (d). budding

Q. Which are the essential macronutrients of soil?

- (a).N & P
- (b). B & Cl
- (c).Zn & Ni
- (d). Fe & Mo

Q. Place where plants are nourished, developed and marketed is called

- (a).Garden
- (b).Palace
- (c).Nursery
- (d). Farm

Q.which is the most important tool of propagation?

- (a). Pneumatic secateurs
- (b). secateurs
- (c). hoe
- (d). spade

Q. Which of the following xerophytes is used for gardening purpose?

- (a).Cactus
- (b). *Mangifera*
- (c). climbers
- (d). Mums

Q.which of the following are not the essential requirements for plants?

- (a).Pesticides
- (b). Light
- (c).Soil
- (d). Water

Q. Point mutation involves

- (a). deletion
- (b).insertion
- (c). duplication



(d). change in single base pair

Q. Transition type of gene mutation is caused when

- (a). GC is replaced by TA
- (b). CG is replaced by GC
- (c). AT is replaced by CG
- (d). AT is replaced by GO

Q. Gene mutation occurs at the time of

- (a). DNA repair
- (b). DNA replication
- (c). Cell division
- (d). RNA transcription

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

- (a). formation of thymine dimers
- (b). methylation of base pairs
- (c). deletion of base pairs
- (d). addition of base pairs

Q. X rays causes mutation by

- (a). deletion
- (b). transition
- (c). transversion
- (d). base substitution

Q. Which of the following have been developed by mutation?

- (a). Knol knol variety of castor
- (b). Aruna variety of barley
- (c). Erectiferum variety of cabbage
- (d) Reimel variety of Rice

Q. Normally DNA molecule has A-T. G-C pairing. However, these bases can exist in alternative forms owing to rearrangements called

- (a) point mutation
- (b) frameshift mutation
- (c). analogue substitution.
- (d). tautomerization mutation

Q. In mutational event, when adenine is replaced by guanine, it is a case of

- (a) transition
- (b) transcription
- (c) transversion
- (d). frameshift mutation

Q. Muller was first to produce induced mutations in by exposing them to X rays

- (a). Paramecium
- (b). Arabidopsis
- (c). Drosophila
- (d). Xenopus

Q. Which of the following is not ionizing radiations are

- (a) Xrays
- (b) UV rays
- (c) cosmic rays
- (d) alpha rays

Q. Which of the following is not true about inversion?

- (a). Two DNA strands with an inverted segment will not pair
- (b). Inverted chromosomes are generally viable
- (c). Inversion including centromere is known as paracentric
- (d). Inversion can cause chromosome breakage

Q. Which of the following statement is incorrect?

- (a). Chromosome number is constant within different species in an ecosystem
- (b). Chromosome number is constant within different somatic cells of an organism
- (c). Chromosome number is constant within individuals in a species in an ecosystem
- (d). All of these

Q. The size of chromosome is measured during

- (a). Metaphase
- (b). Anaphase
- (c). Prophase
- (d). All Of These

Q. Euchromatin

- (a). Is Partially Condensed
- (b). Genetically Active Chromatin With Genes
- (c). Stains Lightly
- (d). All Of These

Q. Chromatin Has

- (a). DNA
- (b). DNA, RNA And Proteins
- (c). DNA And Proteins
- (d). None Of These

Q. Chromosome with a very short arm and a very long arm is termed as

- (a). Sub-metacentric
- (b). Telocentric
- (c). Metacentric
- (d). Acrocentric

Q. \_\_\_\_\_ inversions reduce crossing over in \_\_\_\_\_.

- (a). Pericentric, Heterozygous
- (b). Pericentric homozygous
- (c). Paracentric, Heterozygous
- (d). Paracentric, homozygous

Q. Long pericentric inversions generally don't act as cross over suppressors. Why?

- (a). Cross over product in this is viable

- (b). Two events of crossing over take place
- (c). Long stretches of DNA recombination not recognized
- (d). Mechanism is different for short and long inversions

Q. The random abnormal number of chromosomes in the animals is called: •

- (a) Polyploidy
- (b) Euploid
- (c) aneuploid
- (d). None

Q. XO is:

- (a). Trisomic
- (b). Monosomic
- (c). Tetrasomics
- (d). Nullisomics

Q. Mosaic trisomy is:

- (a). Trisomic
- (b). Monosomic
- (c). Tetrasoms
- (d). Nullisomics

Q. A condition in which the organisms have more than two complete sets of chromosomes is called:

- (a) Polyploidy
- (b) Euploidy
- (c) aneuploidy
- (d) None

Q. Which of the following is octaploid?

- (a) Wheat
- (b) strawberry
- (c) cotton
- (d) Oat

Q. The interchange of parts between non-homologous chromosomes is called:

- (a). Duplication
- (b) translocation
- (c) Inversion
- (d) Deletion

Q. Frameshift mutation is caused due to?

- (a) Duplication
- (b) translocation
- (c) Inversion
- (d) Deletion

Q. What is the correct definition of excision repair?

- (a) Repair of a single damaged nucleotide
- (b) Repair of a damaged oligonucleotide

- (c) Removal of a single damaged nucleotide
- (d) Removal of a damaged oligonucleotide

Q. How many types of excision repair systems are known?

- (a) 1
- (b) 2
- (c) 3
- (d) 4

Q. What is the main enzyme that plays a major role in formation of thymine dimer?

- (a) DNA glycosylase
- (b) DNA photolyase
- (c) DNA gyrase
- (d) DNA ligase

Q. Which two Uvr component molecules scan the DNA during nucleotide excision repair?

- (a) UvrC, UvrA
- (b) UvrA, UvrB
- (c) UvrB, UvrC
- (d) UvrD, UvrA

Q. After creation of the bubble which Uvr component are recruited?

- (a) Uvr B
- (b) Uvr A
- (c) Uvr C
- (d) Uvr D

Q. If the mutation has a negligible effect on the function of a gene, it is known as a

- a) Silent mutation
- b) Frame shift mutation
- c) Substitution mutation
- d) Insertion mutation

Q. Which of the following mechanisms will remove uracil and incorporate the correct base?

- a) Direct repair
- b) Base excision repair
- c) Mismatch repair
- d) Nucleotide excision repair

Q. Which of the following has the self-repairing mechanisms?

- a) DNA and RNA
- b) DNA, RNA and protein
- c) Only DNA
- d) DNA and proteins

Q. What is the function of enzyme involved in base excision repair?

- a) Addition of correct base
- b) Addition of correct nucleotide

- c) Removal of incorrect base
- d) Removal of phosphodiester bond

Q. The DNA polymerase involved in base excision repair is \_\_\_\_\_

- a) DNA polymerase  $\alpha$
- b) DNA polymerase  $\beta$
- c) DNA polymerase  $\sigma$
- d) DNA polymerase  $\gamma$

Q. An alteration in a nucleotide sequence that changes a triplet coding for an amino acid into a termination codon is \_\_\_\_\_

- a) Nonsense mutation
- b) Mutagenesis
- c) Mutation
- d) Mutagen

Q. A point mutation that replaces a purine with another purine, or a pyrimidine with another pyrimidine \_\_\_\_\_

- a) Nonsense mutation
- b) Silent mutation
- c) Transition mutation
- d) Transversion

Q. The enzyme photolyase is used in what method of repair?

- a) Base excision
- b) Photo reactivation
- c) Nucleotide excision
- d) None of the mentioned

Q. During replication, Okazaki fragments elongate

- (a) leading strand towards the replication fork
- (b) lagging strand towards the replication fork
- (c) leading strand away from the replication fork
- (d) lagging strand away from the replication fork

Q. Which of the following enzymes separates the two strands of DNA during replication?

- (a) Gyrase
- (b) Topoisomerase
- (c) Helicase
- (d) DNA polymerase

Q. DNA replication is

- (a) conservative
- (b) conservative and discontinuous
- (c) semi-conservative and discontinuous
- (d) semi-conservative and semi-discontinuous

Q. DNA polymerase synthesizes

- (a) DNA in 5'-3' direction
- (b) DNA in 3'-5' direction
- (c) mRNA in 3'-5' direction
- (d) mRNA in 5'-3' direction

Q. The 3' – 5' phosphodiester linkage joins

- (a) two DNA strands
- (b) two nucleotides
- (c) a nitrogenous base with pentose sugar
- (d) two nucleosides

Q. The fragments of DNA are joined together by which of the following enzymes?

- (a) Endonuclease
- (b) DNA polymerase
- (c) Primase
- (d) Ligase

Q. DNA fingerprinting recognizes the differences in

- (a) satellite DNA
- (b) bulk DNA
- (c) Repetitive DNA
- (d) both (a) and (c)

Q. If the DNA strand has nitrogenous base sequence ATTGCC, the mRNA will have?

- (a) ATTGCA
- (b) UGGACC
- (c) UAACGG
- (d) ATCGCC

Q. The type of coiling in DNA is

- (a) Zig-zag
- (b) Left-handed
- (c) Opposite
- (d) Right-handed

Q. The total DNA comprises what amount of cytoplasmic DNA in cells?

- (a) 95-99%
- (b) 65-75%
- (c) 45-50%
- (d) 1-5%

Q. The bases are held together in a DNA double helix by hydrogen bonds. These bonds are

- (a) Ionic bonds
- (b) Covalent bonds
- (c) Non-covalent bonds
- (d) Van der Waals forces

Q. RNA contains Uridine, it is a

- (a) pyrimidine
- (b) purine
- (c) nucleotide
- (d) nucleoside

Q. Anticodon is present in

- (a) DNA
- (b) tRNA
- (c) rRNA
- (d) mRNA

Q. Which of the following purine bases is present in RNA?

- (a) Uracil
- (b) Thymine
- (c) Cytosine
- (d) Guanine

Q. Which of the following is found more widely in a cell?

- (a) RNA
- (b) DNA
- (c) Sphaerosomes
- (d) Chloroplasts

Q. RNA contains repeating units of

- (a) deoxyribonucleotides
- (b) ribonucleotides
- (c) deoxyribonucleosides
- (d) ribonucleosides

Q. Which of the following rRNAs in bacteria acts as a ribozyme as well as structural RNA?

- (a) 23S rRNA
- (b) 18S rRNA
- (c) 5.8S rRNA
- (d) 5S rRNA

Q. Which of the following RNAs are the most abundant in an animal cell?

- (a) mRNA
- (b) tRNA
- (c) miRNA
- (d) rRNA

Q. A single strand of mRNA attached to complex of ribosomes is called

- (a) Okazaki fragments
- (b) polymer
- (c) polysome
- (d) polypeptide

Q. Which of the following RNAs' structure is similar to clover leaf?

- (a) tRNA

- (b) rRNA
- (c) mRNA
- (d) hnRNA

Q. A codon contains how many nucleotides?

- (a) 1
- (b) 2
- (c) 3
- (d) 4

Q. The initiation codon is \_\_\_\_\_

- (a) AUG
- (b) UAA
- (c) UAG
- (d) UGA

Q. The termination codon is not \_\_\_\_\_

- (a) AUG
- (b) UAA
- (c) UAG
- (d) UGA

Q. How many t-RNAs are required to translate all 61 codons?

- (a) 31
- (b) 32
- (c) 30
- (d) 29

Q. Which position of a codon is said to wobble?

- (a) First
- (b) Second
- (c) Third
- (d) Fourth

Q. The genetic code translated the language of \_\_\_\_\_

- (a) Proteins into that of RNA
- (b) Amino acids into that of RNA
- (c) RNA into that of proteins
- (d) RNA into that of DNA

Q. Wobble hypothesis was first proposed by \_\_\_\_\_

- a) Nirenberg
- b) Watson and Crick
- c) Watson
- d) Crick

Q. The enzyme required for transcription is

- (a) RNAase



- (b) DNA polymerase
- (c) RNA polymerase
- (d) Restriction enzymes

Q. Transcription is the transfer of genetic information from

- (a) DNA to RNA
- (b) DNA to mRNA
- (c) mRNA to tRNA
- (d) tRNA to mRNA

Q. Sigma factor is a component of

- (a) DNA ligase
- (b) DNA polymerase
- (c) Endonuclease
- (d) RNA polymerase

Q. The main function of tRNA with regards to protein synthesis is

- (a) Proofreading
- (b) identifies amino acids and transports them to ribosomes
- (c) Inhibits protein synthesis
- (d) all of the above

Q. One end of tRNA matches genetic code in three-nucleotide sequences known as

- (a) codon
- (b) genetic code
- (c) blunt ends
- (d) anticodon

Q. In both prokaryotic and eukaryotic cells, the synthesis of protein chains is initiated with

- (a) Arginine
- (b) Methionine
- (c) Serine
- (d) Valine

Q. Transcription in eukaryotes is initiated when

- (a) RNA strand is present
- (b) RNA polymerase is present
- (c) Core promoter sequence is present
- (d) None of these

Q. The process of formation of RNA is known as \_\_\_\_\_

- a) Replication
- b) DNA repair
- c) Translation
- d) Transcription

Q. Like replication, transcription also occurs bidirectionally.

- a) True
- b) False

Q. Mark the statement which is INCORRECT about the transcription unit?

- a) It is a transcribed segment of DNA
- b) Eukaryotes have monocistronic transcription unit
- c) Prokaryotes also have a monocistronic transcription unit
- d) Immediate product of transcription is primary transcript

Q. Name the site where upstream sequences located?

- a) Prior to start point
- b) After the startpoint
- c) Right border of DNA
- d) In the middle of DNA

Q. Which of the following is TRUE for the RNA polymerase activity?

- a) DNA dependent DNA synthesis
- b) Direct repair
- c) DNA dependent RNA synthesis
- d) RNA dependent RNA synthesis

Q. Which of the following ensure stable binding of RNA polymerase at the promoter site?

- a) DNA photolyase
- b) Sigma factor
- c) DNA glycosylase
- d) RecA

Q. What is the work of the sigma factor in transcription?

- a) Helicase action
- b) Transcription initiation
- c) Transcription elongation
- d) Transcription termination

Q. How many base pairs of DNA is transcribed by RNA polymerase in one go?

- a) 5-6
- b) 3
- c) 4
- d) 7-8

Q. Which of the following transcription termination technique has RNA dependent ATPase activity?

- a) Intercalating agents
- b) Rho dependent
- c) Rho independent
- d) Rifampicin

Q. Name the one intrinsic terminator of transcription.

- a) Intercalating agents
- b) Rho independent
- c) Rho dependent
- d) Acridine orange

Q. Mark the one, which is NOT the transcription inhibitor in eukaryotes.

- a) Rifampicin
- b) Acridine dye
- c) Actinomycin D
- d) Rho factor

Q. Genetic code is

- a) the sequence of nitrogenous bases in mRNA molecule that codes for a protein
- b) is a triplet code
- c) is non-overlapping
- d) all of these

Q. Translation is the DNA-RNA Polymerase

- a) synthesis of DNA from a mRNA template Pre-miRNA Transcription
- b) synthesis of protein from a mRNA template a DNA template RNA processing
- c) synthesis of RNA from a mRNA template Polypeptide Ribosome
- d) synthesis of RNA from

Q. Translation occurs in the

- a) nucleus
- b) cytoplasm
- c) nucleolus
- d) lysosome

Q. During translation, proteins are synthesized

- a) by ribosomes using the information on DNA
- b) by lysosome using the information on DNA
- c) by ribosomes using the information on mRNA
- d) by ribosomes using the information on rRNA

Q. The enzyme involved in amino acid activation is

- a) ATP synthetase
- b) aminoacyl tRNA synthetase
- c) aminoacyl mRNA synthetase
- d) aminoacyl rRNA synthetase

Q. Which of the following RNA molecules serves as an adaptor molecule during protein synthesis

- a) rRNA
- b) mRNA
- c) tRNA
- d) tRNA and mRNA

Q. In Prokaryotes, the first amino acid in the polypeptide chain is

- a) methionine
- b) N-methyl methionine
- c) N-formyl methionine
- d) All of these

Q. In Prokaryotes, the ribosomal binding site on mRNA is called

- a) Hogness sequence
- b) Shine-Dalgarno sequence
- c) Pribnow sequence
- d) TATA box

Q. During translation, the role of enzyme peptidyl transferase is

- a) transfer of phosphate group
- b) amino acid activation
- c) peptide bond formation between adjacent amino acids
- d) binding of ribosome subunits to mRNA

Q. Which is the energy rich molecule required for initiation of translation

- a) ATP
- b) GTP
- c) CTP
- d) AMP

Q. eRF1 is the release factor in eukaryotes that requires

- a) ATP for its binding to ribosome
- b) GTP for its binding to ribosome
- c) ATP and GTP for its binding to ribosome
- d)  $Mn^{2+}$  for its binding to ribosome

Q. In eukaryotes, translation is initiated by binding of ribosome to the

- a) Pribnow's box
- b) Hogness box
- c) 5' cap
- d) poly A tail

Q. Lactose utilization by E. coli requires \_\_\_\_\_

- a) Lac-Z
- b) Lac-A
- c) Lac-Y
- d) Lac-I

Q. The lactose repressor is encoded by \_\_\_\_\_

- a) Lac-I
- b) Lac-A
- c) Lac-Y
- d) Lac-Z

Q. Where does a repressor bind an operon?

- a) Operator
- b) Promoter
- c) Inducer
- d) Catabolite activator site

Q. Which of the following is not required for the expression of genes in the lactose operon?

- a) lacI gene product
- b) cAMP
- c) Allolactose
- d) Adenylate cyclase

Q. Which out of the following is not an example of an inducible operon?

- a) Lactose operon
- b) Galactose operon
- c) Maltose operon
- d) Tryptophan operon