BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – M.Sc.(MB)-2021
Course Name – Molecular Biology and Microbial Genetics
Course Code - MMB201
(Semester II)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Both the strands of DNA serve as templates concurrently in

a) Replication b) Excision repair
c) Mismatch repair d) None of these

(ii) Round structures of Deoxyribonucleic Acid (DNA) around histone proteins are called

a) Mono hybrid genes b) Hybrid genes
c) Chromosomes d) Nucleosomes

(iii) Wobble position means

a) Base paring b) Altered base on code
c) Third altered base on codon d) None of these

(iv) Which of the statements given below is correct with respect to frameshift mutation

a) Single nucleotide base change, insertion, or deletion of the genetic material b) Glutamine is replaced by valine
c) Sickle cell anemia is an example d) Insertions or deletions of a number of nucleotides in a DNA sequence that is not divisible by three

(v) Which one of the following enzyme is not a protein:

a) DNAse b) Abzyme
c) EcoRI d) Ribozyme

(vi) Exons are spliced to form

a) mRNA b) tRNA
c) rRNA d) None of these

(vii) An alteration in the sequence of bases in a gene resulting in an altered gene product is called

a) Mutation
b) Translation
c) Transfer
d) Repressor

(viii) Introduction of DNA molecules into the recipient organism is termed as _____

a) Transformation
b) Translation
c) Transduction
d) Transcription

(ix) F plasmid is often used in conjugation. The correct statement is-

a) The F plasmid encodes the factor which is transferred from one cell to another
b) The factor encoded by the F plasmid is called as Filamentous (F) factor
c) It is transferred from one cell to another by filament
d) The bacteria must belong to same species to carry out the conjugation

(x) Sickle cell anemia is caused

a) When valine is replaced by glutamic acid in beta polypeptide chain
b) When glutamic acid is replaced by valine in beta polypeptide chain
c) When glutamic acid is replaced by valine in alpha polypeptide chain
d) When valine is replaced by glutamic acid in alpha polypeptide chain

(xi) Which mRNA will be translated to a polypeptide chain containing 8 amino acids?

a) AUGUUAAUAGACGAGUAGCGACGAUGU
b) AUGAGACGGACUGCAUUCCCAACCUGA
c) AUGCCCAACCGUUAUUCAUGCUAG
d) AUGUCGACAGUCUAAAACAGCGGG

(xii) In Prokaryotes, the ribosomal binding site on mRNA is called

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

(xiii) The production of repressor protein is by

a) Plasma gene
b) Regulator gene
c) Promoter gene
d) Operator gene

(xiv) 'Transforming factor' is used for the name of

a) RNA
b) DNA
c) tRNA
d) None of these

(xv) DNA is denatured by

a) Heat
b) Acid
c) Alkali
d) All of these

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Summarize the binding sites for t-RNAs in translation. (3)
3. Mention major differences between prokaryotic DNA polymerase I and III. (3)
4. Define Okazaki fragments. Where it is found and when? (3)
5. State the difference between the semiconservative and conservative modes of DNA replication. (3)
6. State the function of exonuclease and endonuclease in DNA replication (3)

OR

Write a short note about transcription termination (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. What are the changes involved with the denaturation of DNA? (5)
8. Summarize the features of genetic codons. (5)

9. Illustrate polymerization and elongation strand phase of DNA replication. (5)
10. Estimate what are the reasons of DNA damage. (5)
11. Write a short note on post translational modification. (5)
12. Define transposons. What are the types and applications of transposons? (5)

OR

Establish a schematic representation of relation between repressor, operator, activator and inducer. (5)

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