647510 **BSc5MicC503x** **Seat No :_____**

B.Sc. Semester - 5 (Remedial) (*CBCS*) Examination
March/April-2024 (NEW COURSE)
Molecular Biology and Bio-Engineering(Core)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que.1(A) Give specific answers. (04)

1) Define: Allele.
2) Write the two model of DNA Replication.
3) _____ is known as the "Father of Genetics".
4) Calculate the probability of getting AABB genotype, if a plant with genotype AaBb is self-fertilized. (A and B are not linked).

Que.1(B) Answer in Brief. (Any one out of two) (03)

1) Basic information of Morgan's experiments on drosophila.
2) Describe in short: DNA is the universal genetic material.

Que.1(C) Write a Note on. (Any one out of two) (07)

1) DNA replication in bacteria.
2) Mendelian Laws of inheritance.

Que.2(A) Give specific answers. (04)

1) Define: Operon
2) Explain: Translation.
3) How many numbers histones in the core of a nucleosome?
4) Eukaryotic entities transcription takes place in the_____. (Nucleus, Cytoplasm)

Que.2(B) Answer in Brief. (Any one out of two) (03)

1) Ribosome structure and its role in translation.
2) Write the short note on Gene regulatory proteins.

Que.2(C) Write a Note on. (Any one out of two) (07)

1) Post translational modifications.
2) Regulation of Tryptophane operon.

Que.3(A) Give specific answers. (04)

1) Define: Competence.
2) Who discovered the transposable genetic elements?
3) Which of the enzymes are used to cut the recipient DNA?
4) The transfer of naked DNA from one cell to another is referred to as _____

Que.3(B) Answer in Brief. (Any one out of two) (03)

1) Write the brief about conjugation.
2) Mechanism of transformation in *S. pneumonia*.

Que.3(C) Write a Note on. (Any one out of two) (07)

1) Generalized transduction and Specialized transduction.
2) Homologous recombination and Site-specific recombination.

Que.4(A) Give specific answers. (04)

1) Define: Mutation.
2) What is phenomic lag?
3) Write two names of chemical mutagenic agent.
4) The DNA polymerase involved in base excision repair is _____. (α, β, γ)

Que.4(B) Answer in Brief. (Any one out of two) (03)

1) Ame's test.
2) Somatic mutation and prion mutation.

Que.4(C) Write a Note on. (Any one out of two) (07)

1) Types of spontaneous mutation.
2) Mismatch repair and Excision repair.

Que.5(A) Give specific answers. (04)

1) Explain: Plasmids.
2) Full form of BAC.
3) Define: Protein Engineering.
4) _____enzyme is useful in genetic engineering. (Restriction endonuclease, reverse transcriptase)

Que.5(B) Answer in Brief. (Any one out of two) (03)

1) Adaptors and linkers.
2) C-DNA library preparation.

Que.5(C) Write a Note on. (Any one out of two) (07)

1) Elaborate the steps involve in gene cloning.
2) Detection methods of recombinant molecule.

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