



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours/Programme 3rd Semester Examination, 2022-23

MCBHGEC03T/MCBGCOR03T-MICROBIOLOGY (GE3/DSC3)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

Question No.1 is compulsory and answer any four from the rest

Answer any **four** questions from the following:

2×4 = 8

- (a) What are the features of cloning vehicle?
- (b) What is the composition of nucleosome?
- (c) What do you mean by native form of DNA?
- (d) What is the difference between mono and polycistronic mRNA?
- (e) What is catenation?
- (f) What is insertional inactivation?
- (g) Name one ionizing and non-ionizing radiation those are causing mutation in DNA.

(a) Write down the differences between prokaryotic and eukaryotic transcription. 2+(1×4)+2

(b) Write down the role of the following proteins in transcription:

- (i) Sigma protein
- (ii) Rho protein
- (iii) Poly A tailing
- (iv) Transcription factor.

(c) What is Wobble hypothesis? 2+2+2+2

- (a) What is the role of allolactose and lac z gene in lac operon?
- (b) What are the differences between generalised and specialised transduction?
- (c) What is the role of CaCl₂ in CaCl₂ mediated bacterial transformation?
- (d) How does Hfr strain form?

Turn Over

4. Write short notes of the following: 2×4 = 8
- (i) DNA ladder
 - (ii) C value paradox
 - (iii) Primase
 - (iv) Taq Polymerase.
5. (a) What are A Site and P site? 2+2+3+1
- (b) Why DNA replication is called semiconservative replication?
- (c) Differentiate between transition and transversion in mutation with example.
- (d) What is depurination?
6. (a) What are the features of pBR322 as cloning vector? 2+(2+2)+2
- (b) Write short notes on:
- (i) Mutational hotspots
 - (ii) Replication fork.
- (c) What do you mean by Cot curve?
7. (a) What is a reading frame? Give example. 2×4 = 8
- (b) What do you mean by the term "Redundant" code?
- (c) What is Gene therapy?
- (d) What is RT-PCR?
8. (a) What is a selectable marker? Give example. 2+3+2+1
- (b) Differentiate between Type-I, II, III restriction enzymes.
- (c) What is the editing function of Pol I?
- (d) What is abortive transcription?

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