S-035017 Seat No. _____

B. Sc. (Sem. V) Examination

November / December - 2020

BSCC505A : Microbial Molecular Biology & Genetics

Time : 2 Hours] [Total Marks : 50

Instructions : (1) Answer only **three (3)** questions.
(2) The examination will be for **two (02)** hours.
(3) Q. No. **9** (MCQ Type Question) is **compulsory** and carries **14** marks.
(4) Answer any **two** questions from questions No. **1** to **8**. Each question carries **18** marks.

1 Answer the following:
(1) Explain transformation principal as an experimental proof to prove DNA as genetic material.
(2) Explain Gene structure of protein coding genes.

2 Answer the following:
(1) Explain transcription in prokaryotes.
(2) Explain elongation phase of translation process in procaryotes.

3 Answer the following:
(1) Describe negative transcriptional control of inducible genes with reference to lactose operon.
(2) Explain transcription elongation control of *trp* operon.

4 Answer the following:
(1) Write a note on antisense RNA as controlling mechanism at translational level.
(2) Explain Quorum sensing in *V. fischeri*.

5 Answer the following :
(1) What is mutation? Explain types of mutations in detail.
(2) Explain method which is used to detect carcinogenic agent in detail.

6 Answer the following:

(1) Enlist various DNA repair mechanisms. Explain direct repair & mismatch repair in detail.

(2) What are composite & Conjugative transposons? Explain mechanisms of transposition in prokaryotes.

7 Answer the following:

(1) Enlist various types of conjugation in bacteria & explain F' conjugation in detail.

(2) Explain the process of DNA transformation in bacteria.

8 Answer the following:

(1) What is transduction? Explain generalized virus-mediated transfer of genetic meterial in detail.

(2) Explain interrupted mating experiment in detail.

9 Answer in one or two lines:

(1) What is central dogma?

(2) Which bonds are present in DNA?

(3) Which type of DNA replication is observed in plasmid replication?

(4) In eukaryote, which RNA polymerases synthesize rRNA & tRNA?

(5) What are constitutive genes? Give example of constitutive genes.

(6) What are repressible enzymes?

(7) What is the function of CAP?

(8) Give examples of any two physical matagenic agents.

(9) Which method is used to isolate auxotrophic mutants?

(10) What is photoreactivation?

(11) Who discovered transposons & in which year?

(12) Who discovered generalized transduction & when it was discovered?

(13) What is specialized transduction?

(14) What is interrupted mating?
