**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

Date:

**B.Sc. BIOTECHNOLOGY - IV SEMESTER**

**SEMESTER EXAMINATION: APRIL 2022**

**(Examination conducted in July 2022)**

**BT 415: Molecular Biology**

**Time- 1 1/2 hrs Max Marks-35**

**This question paper contains ONE printed page and TWO parts**

**Part A: Answer any SEVEN of the following questions. 7 X 2=14 marks**

1. Briefly describe Griffith’s experiments that lead to discovery of the ‘transforming principle’.
2. What are the main characteristics of the two polynucleotide strands that form the DNA double helix?
3. Draw a neatly labelled diagram of a replication fork.
4. What are the roles of DnaA, DnaB and DnaC proteins in replication?
5. What are the different types of point mutations that occur in DNA?
6. How are Pyrimidine dimers repaired in prokaryotes?
7. Briefly describe the SOS response of DNA repair.
8. What is a Transcription Bubble?
9. Name the enzymes involved in the *lac* operon and their functions.
10. Describe regulation of the Tryptophan operon via the repressor-operator system.

**Part B: Answer any THREE of the following questions. 3 X 7=21 marks**

1. Describe post translational processing of proteins.
2. How is the *trp* operon regulated by the process of Attenuation?
3. Compare and contrast prokaryotic and eukaryotic translation initiation.
4. What are the differences between prokaryotic and eukaryotic promoters? Add a note on the structure of the prokaryotic RNA Polymerase.
5. What are the different types of mutagens? Give examples for each.

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