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NB—14—2023

FACULTY OF SCIENCE

B.Sc. (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(New Pattern)

BIOTECHNOLOGY

Molecular Biology

(Monday, 04-12-2023)

Time : 2.00 p.m. to 5.00 p.m.

Time—3 Hours

Maximum Marks—75

N.L. :— (i) All questions are compulsory

(ii) All questions carry equal marks.

1. Describe in detail various steps involved in prokaryotic DNA replication. 15

Or

(a) Explain in detail Messelson and Stahl's experiment. 8

(b) Explain in detail recombinational repair mechanism. 7

2. Describe in detail prokaryotic transcription. 15

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Or

- (a) Explain in detail mechanism of intron splicing and polyadenylation. 8
- (b) Explain in detail structure of RNA polymerase. 7
3. Describe in detail mechanism of Eukaryotic translation. 15
- Or
- (a) Explain in detail mechanism of post translational modifications. 8
- (b) Explain in brief role of *mRNA*, *tRNA* and *rRNA*. 7
4. Explain in detail tryptophan Operon. 15
- Or
- (a) Explain in detail positive regulation of lactose operon. 8
- (b) Explain various properties of genetic code. 7
5. Write short notes on any *three* of the following : 3×5=15
- (i) Wobble hypothesis
- (ii) Cot curve
- (iii) SOS Repair
- (iv) Negative regulation of lactose operon.
- (v) Structure of promoter.

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