

5088/2

FACULTY OF SCIENCE

B.Sc. (III Semester) Examination

BIOTECHNOLOGY

Paper III

(Molecular Biology and rDNA Technology)

Time : 3 Hours]

[Max. Marks : 80

Section A – (Marks: $8 \times 4 = 32$)

1. Answer any **eight** of the following questions:

- | | |
|------------------------------|-------------------------------------|
| (a) Classes of RNA molecules | (b) Polymerases of Eukaryotes |
| (c) Wobble hypothesis | (d) Co-ordinated gene regulation |
| (e) Negative regulation | (f) Inhibitors of Protein synthesis |
| (g) Plasmids | (h) cDNA library |
| (i) Bacterial vectors | (j) Variations of PCR |
| (k) Southern blotting | (l) Sanger's model of sequencing. |

Section B – (Marks: $4 \times 12 = 48$)

Answer the following questions.

2. (a) Explain in detail the transcription mechanism in prokaryotes.
Or
(b) Explain the mechanism of translation in Eukaryotes.
3. (a) Describe the Trp Operon.
Or
(b) Describe in detail the general aspects of regulation in prokaryotes.
4. (a) Define gene cloning. Give a brief account of the vectors used in rDNA technology.
Or
(b) Describe in detail the construction of genomic and cDNA libraries.
5. (a) Describe in detail the principle, methodology and applications of PCR technique.
Or
(b) Describe DNA fingerprinting technique and its applications in forensic medicine.
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