

45023

M.Sc. DEGREE EXAMINATION, APRIL 2015.

FOURTH SEMESTER

Biochemistry

Paper III — GENETIC ENGINEERING

Time : Three hours

Maximum : 75 marks

(No additional sheet will be supplied)

SECTION A — (5 × 3 = 15 marks)

Answer any FIVE questions.

Each question carries 3 marks.

Each answer should not exceed 2 pages.

1. Shuttle vectors
2. DNA gyrases
3. Fragmentation of DNA
4. Isolation of genes
5. PCR
6. cDNA library
7. Max-Gilber method
8. DNA microarray.

SECTION B — (4 × 15 = 60 marks)

Answer ALL questions.

Each question carries 15 marks.

Each answer should not exceed 6 pages.

9. Explain the importance of phage and cosmid vectors in gene cloning.

Or

10. Write short notes on :
 - (a) DNA Polymerase
 - (b) Topoisomerases
 - (c) Plasmid vectors.

11. Explain the introduction of recombinant DNA into eukaryotic cells.

Or

12. Write short notes on :

- (a) Isolation of RNA
- (b) Determination of nucleotide sequence
- (c) Screening of recombinants.

13. Explain the importance of molecular markers RFLP and RAPD.

Or

14. Write short notes on :

- (a) Chromosome walking
- (b) Restriction mapping
- (c) Expression sequence tags.

15. Give an account applications of rDNA technology in agriculture.

Or

16. Write short notes on :

- (a) Industrial applications of genetic engineering
- (b) Bacterial expression systems
- (c) Human genome project.

