(For candidates admitted from 2016–2017 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Biochemistry – Elective

GENETIC ENGINEERING

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20)

Answer ALL the questions.

1. Write two merits of gene cloning.

2. What is plasmid DNA?

3. Define cosmid vector.

4. Write the role of reverse transcriptase enzyme.

5. What is recombinant DNA?

6. Write short note on chromosome walking.

7. Define molecular marker.

8. What is genomics?

9. Describe gene therapy.

10. Write two hazards of genetic Engineering.

SECTION B — (5 × 5 = 25)

Answer ALL questions, choosing either (a) or (b).

11. (a) Describe the isolation and purification of plasmid DNA.

Or

(b) Detail the methodology in isolation of plant cell DNA.

12. (a) Illustrate the plant and animal vectors.

Or

(b) Describe the role of restriction endonuclease in genetic engineering.

13. (a) Briefly explain cDNA library.

Or

(b) Give a short note on site directed mutagenesis.

14. (a) Explain transfer of gene by microinjection method.

Or

(b) Write a note on DNA foot printing.

15. (a) Comment on applications of gene manipulation in herbicide resistant plants.

Or

(b) Illustrate anti sense RNA technology.

SECTION C — (3 × 10 = 30)

Answer any THREE questions.

16. Explain the role of rDNA technology in genetic engineering.

17. Illustratively classify cloning vectors.

18. Write the principle and detail steps involved in PCR.

19. Describe human genome project.

20. Elaborate the applications of genetic engineering in diagnosis and therapy.

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