C 57258 **(Pages : 2)** **Name**.....

Reg. No.....

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, JULY 2009

General Biotechnology (Main)

GBT–215—GENETIC ENGINEERING

Time : Three Hours Maximum : 80 Marks

Section A

Answer any **two** *questions.*

1. What is DNA profiling ? How it is used as a molecular marker and mention its application in disease prognosis and animal husbandry.
2. Emphasis on production methodology on (1) Insert resistance ; (2) Nematode resistance ; (3) Disease resistant ; (4) Stress resistant.
3. What are the physical and biological methods of gene transfer ? Write a detailed account on it.

(2 X 10 = 20 marks)

Section B

Answer any **ten** *questions.*

4. Explain the techniques used to increase shelf life of fruits and flowers.
5. Write on the transformation methods for monocots.
6. Differentiate Ri and Ti plasmid. Give the structure for both.
7. What is DNA microarray technology ? Explain.
8. How will you produce a transgenic animal ? Explain in correspondence with gene knockout techniques.
9. Explain genetic map of a genome and the techniques used.
10. RFLP and RAPD are the techniques used as the tools for molecular marker analysis of genome. Justify.
11. Write a brief account on processing of *r* proteins.
12. What are expression vectors. Give an example of mammalian expression with its strategies.
13. How primer extension RNase protection and northern analysis are used in the study of gene regulation ?
14. What is nested PCR. Explain the primer designing strategy for it.
15. Explain the chemical method of DNA sequencing.

(10 x 5 = 50 marks)

Turn over

Section C

Answer all *questions.*

16. Dolly.
17. Importance of *lux* gene.
18. Cryopreservation.
19. Mt DNA.
20. 35S promoter.

(5 x 2 = 10 marks)