

**A 316**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Fifth Semester

Industrial-Bio-Technology

IB 331 — GENETIC ENGINEERING

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write short notes on plasmid incompatibility.
2. What is meant by retrofitting?
3. What is the role of eIF - 4E in cDNA cloning?
4. What is meant by transgene silencing?
5. Give two examples for production of plant-derived vaccines.
6. What are the methods used to select a specific clone?
7. What are the vectors used as alternatives to cosmids?
8. What is meant by chromosome walking?
9. Give two examples of DNA viruses as expression vectors.
10. What is meant by HDGS?

PART B — (5 × 16 = 80 marks)

11. (i) Explain at least two methods of transferring DNA molecules into a host.  
(12)
- (ii) Write short notes on safety guidelines of creating recombinant DNA research.  
(4)

12. (a) Explain the method to construct a cDNA library from a brain tissue. (16)

Or

(b) What is PCR? Explain the different steps involved in the amplification of a DNA fragment by PCR. (16)

13. (a) Describe at least four methods to identify a specific clone from a cDNA library. (16)

Or

(b) Explain in detail the two methods involved in DNA sequencing. (16)

14. (a) Write notes on the following :

(i) Direct DNA transfer to plants. (5)

(ii) Functions of T – DNA genes. (5)

(iii) Control of transgene expression in plants. (6)

Or

(b) DNA sequences as diagnostic tools – Explain. (16)

15. (a) Write an account on the applications of recombinant DNA technology in pharmaceutical industries to derive medicine and cure genetic diseases due to inborn errors of metabolism. (16)

Or

(b) Discuss the steps involved in the creation of mammalian clone by nuclear transplantation. Discuss the phenotypic, genotypic and functional characteristic of mammals derived from the method. (16)