

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

SECOND SEMESTER – APRIL 2016

BT 2823 – GENE MANIPULATION TECHNOLOGY

Date: 16-04-2016

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

PART – A (20 marks)

Answer ALL the Questions:

I. Choose the correct answer

(5 x 1 = 5 Marks)

1) Natural competence is found in which organism?

- a) *Bacillus subtilis* b) *Agrobacterium* c) *E.coli* d) *Rhizobium* sp

2) Replicative form of DNA is found in

- a) pUC 18 b) M13 c) pSC101 d) EMBL3

3) YEp copy number per cell is

- a) 1-20 b) 25-200 c) 1-2 d) 10-15

4) Southern hybridization is between

- a) Protein & Protein b) Protein & DNA
c) DNA & DNA d) RNA & DNA

5) Sanger is associated with

- a) PCR b) DNA Sequencing c) Endonucleases d) Ligases

II. State whether the following are true or false, if false, give reason

(5x1=5 Marks)

6) Exo III is used for gene cloning.

7) EMBL3 is a replacement vector.

8) SV40 can be used as a vector.

9) Carbenicillin is used for bacterial transformation.

10) The optimum temperature for *Taq* polymerase is 45 degrees.

III. Complete the following

(5 x 1 = 5 Marks)

11) _____ is the first recombinant plasmid vector.

12) YAC stands for _____

13) Early genes are found in _____ vector.

14) cDNA mapping is done by _____.

15) RAPD stands for _____ .

IV. Answer the following within 50 words

(5 x 1 = 5 Marks)

16) Define gene manipulation.

17) Mention the various kinds of ligases and its origin?

18) Comment on Bacmid.

19) Define Northern hybridization.

20) What is the limitation of Pulse Field Gel Electrophoresis?

PART – B

(5 x 8 = 40 Marks)

Answer the following each within 500 words. Draw diagrams wherever necessary

21. a) Explain the basic principle involved in recombinant DNA technology.
(OR)
b) Discuss the enzymes that modify the ends of DNA.
22. a) Explain the life cycle of bacteriophage lambda.
(OR)
b) Distinguish between lambda replacement and insertional vectors, cite an example each.
23. a) Give an account on SV40 vectorology.
(OR)
b) Differentiate between YEp and YCp vectors.
24. a) Give an account on cDNA mapping.
(OR)
b) Write briefly on colony blot.
25. a) Describe the various steps involved in Polymerase Chain Reaction.
(OR)
b) What are the main “topic of concerns” related to the environmental release of GMOs?

PART – C

(2 x 20 = 40 Marks)

Answer any TWO of the following, each within 1500 words. Draw diagrams wherever necessary.

- 26) Discuss the desirable properties of vectors and construction of pBR322.
- 27) Describe *Agrobacterium* mediated gene transfer in plants.
- 28) Describe the production of tissue plasminogen activator protein in sheep.
- 29) Describe Southern hybridization.

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