[This question paper contains 4 printed pages]

Sl. No. of Q. Paper : 1007 G **Your Roll No.....**

Unique Paper Code : 253605

Name of the Course : **B.Sc.(Hons.) Microbiology**

Name of the Paper : Recombinant DNA Technology & Biotechnology

Semester : VI

Time : 3 Hours *Maximum Marks : 75*

Instruction for candidates :

(a) Write your Roll No. on the top immediately on receipt of this question paper.

(b) Attempt any **five** questons.

(c) **All** question carry equal marks. Attempt **all** parts of a single question together.

1. (a) Outline the steps of a basic gene cloning experiment sequentially. 5

(b) Explain the principle and applications of DNA footprinting. 6

(c) Discuss any **two** shuttle vectors between a bacterium and yeast. 4

P.T.O.

Instruction for Ca

(a) Write your
on receipt

(b) Attempt **fi**

(c) **All** questic

1. (a) Briefly exp

(i) Giant

(ii) Burst

(iii) Viruse

(iv) Latent

(v) Oncog

(vi) Fusion

(vii) Antige

(viii) Syncy

2. Differentiate between the following pairs (any **5**) : 3×5=15

(i) Biolistics and Microinjection.

(ii) Linkers and Adapters.

(iii) Type I and II restriction enzymes.

(iv) Chromosome walking and Chromosome Jumping.

(v) RT-PCR and RAPD.

(vi) Isoschizomer and Neoschizomer.

3. (a) Discuss the cloning strategy of human insulin gene in a bacterial host. 6

(b) Comment upon the activity of Klenow fragment and Terminal deoxynucleotidyl transferase. Also give their applications. 2+2=4

(c) What do you understand by cointegration strategy ? Discuss their importance and limitations. 5

4. (a) Describe the pBR series and trace its development. 5

(b) What are the factors to be kept in mind while designing a PCR primer ? 4

(c) Discuss the contributions of : 2×3=6

(i) Arber & Smith

(ii) Frederick Sanger

(iii) J. Messing

5. (a) What are artificial chromosomes ? Discuss their types and uses. 6

(b) Discuss Baculovirus based vectors and advantages offered by this system. 5

(c) Give a flow chart of Sanger's DNA sequencing method. 4

6. (a) Explain DNA Microarrays along with their applications. 6

(b) Why is the yeast expression system considered better than *E.coli* for the production of human proteins ? 5

(c) Define Bt-transgenics and state their advantages. 4