

2012**M.Sc.****3rd Semester Examination****MICROBIOLOGY****PAPER—MCB-301****Full Marks : 40****Time : 2 Hours**

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer any two questions from each group.

Group — A**[Marks : 20]**

Answer any two questions

1. What do you mean by Pyrosequencing ? Write its principle and advantages and compare with other DNA sequencing methods. 2+2+2+4
2. Write the principles of PCR for amplification of DNA with special reference to Primer design. What is Multiplex-PCR. 4+3+3
3. Write notes on any *four* of the following $2\frac{1}{2} \times 4$
 - (a) Wester blotting ;
 - (b) Yeast Ty vector ;

- (c) YRP :
- (d) Transposon tagging :
- (e) pBR_{322} :
- (f) Tissue specific expression.

Group — B

100 (Marks : 20)

Answer any *two* questions

4. (a) What are restriction enzymes? Which type of them are most useful for gene cloning and why?
(b) Why is the DNA of a microorganism not degraded by restriction endonuclease that it produces?
(c) Show schematically the construction of chimeric DNA molecule for cloning.
(d) Define genomic library. (1+2)+2+3+2
5. (a) What are Ti-plasmids? How are such plasmids utilized as vectors for transfer of novel genes to plants? Describe briefly step-wise.
(b) What are reporter genes? 2+6+2
6. Write notes on (any *two*) : 5×2
- (a) Insect resistant transgenic plants—basic principle of production ;
 - (b) Liposome mediated gene transfer ;
 - (c) Application of genetic engineering in Forensic Science.