2010

M.Sc.

3rd Semester Examination

MICROBIOLOGY

PAPER—XIII

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. (a) How do you estimate the size of a DNA fragment from agarose gel electrophoresis? 4

(b) Why do you choose pH 6.8 for the Stacking buffer in discontinuous SDS PAGE? 2

(c) What is α-complementation? How is this property utilized in PVC vectors? 2+2

2. (a) How can PCR be utilized to determine if two samples have different amounts of target DNA molecules? 3

(b) Write notes on any *two* : 4

(i) Retrovirus like vector (Ty) in yeast;

(ii) Transposon tagging;

(iii) Annealing temperature ;

(c) What is RAPD–PCR ? 3

3. What is the principle of protein sequencing ? What do you mean by tissue specific gene expression ? Define that advantages of YAC vector. 4+3+3

Group — B

[Marks : 20]

Answer any *two* questions

1. (a) How do you screen a genomic DNA library with oligonucleotides and how this information may be useful ? 4

(b) Briefly discuss application of genetic engineering in forensic science. 3

(c) Discuss the importance of particle gun in genetic engineering. 3

2. (a) Discuss his role of Ti-plasmid in generating transgenic plants. 5

(b) How do you insert a piece of DNA in one particular orientation in a vector. 3

(c) Write the importance of electroporation. 2

3. (i) Mention some strategies that may be followed for producing herbicide-resistant transgenic plants.

(ii) Write notes on (any *two*) :

(a) Type II restriction enzyme ;

(b) Microinjection ;

(c) Chimeric DNA ;

(d) Colony hybridization.

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