

M.Sc.(Biotechnology) (NEP Pattern) - Semester-III
STPG03BTH003 - Paper-III : Genetics Engineering

P. Pages : 1

Time : Three Hours



GUG/W/24/15948

Max. Marks : 80

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- Notes : 1. All questions are compulsory and carry equal marks.
2. Draw well labeled diagrams wherever necessary.

1. Describe in detail gene isolation and purification by shotgun method. Give applications. **16**

OR

i) Discuss in detail direct selection of gene. **8**

ii) Discuss types of restriction enzymes. **8**

2. Discuss general characteristics of plasmids and describe bacterial vector plasmids. Give significance. **16**

OR

i) Give the account of viral vectors lambda. **8**

ii) Discuss in detail current ligation techniques by blunt-end ligation. **8**

3. Describe in details nucleic acid hybridization by southern hybridization technique. **16**

OR

i) Give an account on genomic DNA library and applications. **8**

ii) Discuss DNA sequencing by Maxam-Gilbert chemical cleavage method. **8**

4. Describe in detail DNA uptake in bacterial cells by transformation. **16**

OR

i) Discuss in detail use of polyethylene glycol in transfection technique. Give mechanism. **8**

ii) Describe Gene transfer by pronuclear microinjection. **8**

5. Write short notes on –

i) Direct selection of gene **4**

ii) Homopolymer tailing. **4**

iii) cDNA library. **4**

iv) Electroporation. **4**
