Biotech-2nd
Molecular
15/10/15

QP Code : 12869

(2½ Hours) **[Total Marks : 75**

N.B. : (1) Attempt all questions.
(2) All questions carry equal marks.
(3) Draw neat labeled diagrams wherever necessary.

1. (a) Explain the following terms: (Any three) 3

i)	Heteroduplex DNA	ii)	Hfr strain
iii)	Helper phage	iv)	Host range property
v)	Transducing phage	vi)	Homoallelic mutation

1.b) Elaborate the following: (any two) 12

i) Genetic mapping in bacteria by generalized transduction
ii) Production of F^1 factor
iii) Defining of genes by cis-trans tests
iv) Natural transformation in bacteria

2. a) State the significance of: (any three) 3

i)	VirG protein	ii)	OriT
iii)	Golden rice	iv)	Nopaline
v)	Right border sequence	vi)	Scorable marker/Reporter gene

2.b) Attempt the following (any two) 12

i) Describe the mechanism of T-DNA transfer and integration in to plant genome.
ii) Particle gun method of gene delivery is an efficient method. Justify.
iii) Give an account of development of insect resistant plants with example.
iv) Enlist the advantages and disadvantages of genetically modified crops.

3.a) Give the importance of: (any three) 3

i)	Enucleation	ii)	Pregnant mare's serum
iii)	ES cells	iv)	Gancyclovir
v)	Antifreeze protein	vi)	DNA microinjection

b) Discuss the following: (any two) 12

i) Cloning live stock by nuclear transfer.
ii) Transgenic fish as biosensor.
iii) Applications of transgenic sheep.
iv) Any one method for producing transgenic mouse.

4.a) Explain the following terms (any three): 3

i) Replicative transposition
ii) Non-autonomous transposable elements
iii) Constitutive gene
iv) lac I^smutant
v) O^cmutant
vi) Leader peptide

4. b) Give an account of the following: (any two) 12

i) Types of prokaryotic transposons
ii) Differences between composite and non-composite transposons
iii) Molecular model of attenuation of the trp operon
iv) Effects of repressor mutations with reference to lac operon

5. Write Short notes on (any three) 15

i) Virus mediated gene transfer in plants.
ii) Production and significance of edible vaccines.
iii) Use of transgenic mice as models for Alzheimers disease
iv) Life cycle of λ phage
v) Role of c AMP in the functioning of lac operon
vi) Kernel color in corn and transposon effects