QP Code : 05089

(2 ½ Hours)

[Total Marks : 75

(1) Attempt all questions.
(2) All questions carry equal marks.
(3) Draw neat and labelled diagrams wherever necessary.

(a) Give the definitions of (any three) 3
i) F^1 factor
ii) Prototroph
iii) Temperate phage
iv) Intragenic mapping
v) Host range property
vi) att lambda site

(b) Attempt the following (any two) 12
i) Diagrammatically explain the transfer of genetic material during conjugation in *E.coli.*
ii) "Gene order and map distance may be determined using generalised transduction." Justify.
iii) Explain the types of bacterial transformation giving suitable examples.
iv) Describe the test for determining the units of function in the rII region.

3

(a) Give the role / function of (any three)
i) Reporter gene
ii) Agropine
iii) Gemini virus
iv) micro T_i
v) Wound response
vi) Disarming

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(b) Elaborate on the following (any two)
i) Liposome mediated gene transfer.
ii) Production and use of edible vaccines.
iii) Microprojectile method for gene delivery.
iv) Gene transfer in Agrobacterium by binary vector method.

3

(a) Explain the term (any three)
i) Stem cell
ii) Transgenesis
iii) Anti freeze protein
iv) Knock out mouse
v) Multipotency
vi) Cloning

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(b) Discuss the following (any two)
i) Application of nuclear transfer technique in biopharming.
ii) Method for the production of transgenic fish.
iii) Applications of transgenic mice.
iv) Methods for selection of transformed cells in animal transgenesis.

4 (a) Do as directed (any three)
i) Give the significance of Beta lactamase.
ii) What is co- ordinate induction?
iii) Define -conservative transposition.
iv) State the importance of transposase.
v) Name the product of trp A gene.
vi) Explain the term regulated genes.

Q. 4 (b) Answer the following (any two)
i) Describe the effects of lac I mutations.
ii) Discuss the role of cAMP in the functioning of lac operon.
iii) What are IS elements? State their features.
iv) Give an account of transposition mechanism in plants.

Q. 5 Write Short notes on (any three)
i) Retroviral method for production of transgenic mice.
ii) DNA uptake by protoplasts.
iii) Bt cotton.
iv) Deletion mapping of the r II region in T4 phage.
v) Non composite tranposons.
vi) cis dominant mutations.
