

2 ½ Hours

Total Marks: 75

1. Attempt **all** questions.
2. **All** questions carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculator** is **allowed**.

1. a Give an example of the following (**any three**) 3
 - i. Cell line used for HSV vaccine preparation
 - ii. Method used for DNA sequencing
 - iii. Restriction enzyme used for detection of SCA
 - iv. Restriction enzyme used for preparation of attenuated Cholera vaccine.
 - v. Thermostable enzyme used in PCR
 - vi. Virus used for preparation of vector vaccine
1. b. Answer the following (**any two**) 12
 - i. Discuss the role of VNTRs in solving paternity case.
 - ii. Give an account of automated DNA Sequencing.
 - iii. Give an account of peptide vaccines with suitable example.
 - iv. What is subunit vaccine? State its advantages and disadvantages.
2. a. Do as directed (**any three**): 3
 - i. Define: electroporation.
 - ii. State the action of Cry protein.
 - iii. Give significance of the gene coding for Phytoene synthase in production of golden rice.
 - iv. Give significance of triparental mating while using Ti plasmid vector.
 - v. What is mini- binary vector?
 - vi. Define: microprojectile
2. b. Attempt the following (**any two**): 12
 - i. Elaborate on the application of recombination DNA technology in improving the quality of food
 - ii. What is protoplast fusion? Explain its role in plant transgenesis.
 - iii. Discuss: Ti plasmid mediated vector system
 - iv. Write a note on the ballistic method of DNA delivery to create transgenic plant.
3. a. Explain the following terms (**any three**): 3
 - i. Anti freeze protein
 - ii. Pseudopregnant female
 - iii. Pharming
 - iv. Negative selection
 - v. Superovulation
 - vi. Transgene

3. b. Elaborate the following (**any two**): 12
- i. Cloning of sheep by nuclear transfer method
 - ii. Establishment of transgenic mouse with retrovirus vector
 - iii. Method of establishment of transgenic fish with enhanced growth rate
 - iv. Cre-loxP recombination system
4. a. Explain the following: (**any three**) 3
- i. Browser
 - ii. FASTA
 - iii. Hyperlink
 - iv. NCBI
 - v. SRS
 - vi. URL
4. b. Answer the following (**any two**): 12
- i. Give a detailed account of scope and applications of Bioinformatics
 - ii. What is internet? Explain the role played by internet in Bioinformatics
 - iii. Discuss: Tools used for sequence alignment
 - iv. Elaborate on DNA databases
5. Write short notes on (**any three**): 15
- i. Data retrieval tools
 - ii. DNA vaccines
 - iii. Electroporation
 - iv. Applications of PCR
 - v. Applications of transgenic mice
 - vi. Establishment of transgenic mouse with microinjection
