(i) Printed Pages : 2 Roll No. .....

(ii) Questions : 9 Sub. Code : 1 0 0 8 4

Exam. Code : 5 0 0 1

NEP U.G. Common-Inter Disciplinary Course 1st Semester

(2125)

BIO-TECHNOLOGY

Paper–Foundations of Biotechnology–I BTEIDC

Time Allowed : Three Hours] **[Maximum Marks : 45**

Note :— Attempt ***five*** questions in total. Q. No. 1 is compulsory. Attempt ***one*** question from each Unit.

1. (a) What are model organisms?

(b) Why is Saccharomyces cerevisiae considered an ideal eukaryotic model?

(c) Differentiate between DNA and RNA.

(d) What are enzymes? Mention their main characteristics.

(e) Explain the role of green technology in sustainable development.

(f) What is the basic principle of electrophoresis?

(g) What are functions of protein as biomolecule?

(h) Define transgenic organism.

(i) What is major ethical concern related to GMOs. 1×9

UNIT—I

2. Describe the applications and interdisciplinary nature of biotechnology. 9

3. Compare the structural and genetic advantages of E. coli and Drosophila melanogaster as model organisms in biotechnology research. 9

UNIT—II

4. Explain the structural organization and functional differences between prokaryotic and eukaryotic cells with suitable diagrams. 9

5. Classify enzymes based on the type of reaction catalysed and describe their general properties with examples. 9

UNIT—III

6. (a) Discuss how green technologies can help control industrial and agricultural pollution.

   (b) Give major applications of gene therapy. 4,5

7. Explain the principle of the following techniques :

   (a) Centrifugation

   (b) Chromatography 5,4

UNIT—IV

8. Discuss the applications of genetically modified plants and animals in agriculture and medicine. 9

9. Evaluate the ethical and social implications of GMOs in modern biotechnology. 9