PG Even Semester Exam, May 2025

Biotechnology

2nd Semester

COURSE NO. BTYCC - 554

[Fundamental of Biotechnology]

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer five questions, taking one from each Unit

UNIT-I

1. What is cell proliferation? Discuss the techniques used for measurement of cell proliferation. 2+12=14
2. Write briefly on the following: 4+5+5=14
   a. Use of serum for animal cell culture
   b. Role of cadherins in cell-cell interaction
   c. BrdU assay for cell proliferation

UNIT-II

3. What is metabolism in bacteria? Write the process of breakdown of sugar by bacteria with reference to glycolysis. 2+12=14

Turn over

4. a. Differentiate between humoral and cell–mediated immunity. 10

   b. What is a nucleic acid vaccine? Write briefly on RNA vaccines with examples. 1+3=4

UNIT-III

5. Write in detail about the mitochondrial genome. Differentiate between nuclear DNA and mitochondrial DNA. 10+4=14

6. Write short notes on: 7+7=14

   a. DNA replication

   b. Repetitive DNA

UNIT-IV

7. What is sex-linked inheritance? Discuss the characteristics of sex-linked inheritance. Write a note on red-green color blindness in human. 2+8+4=14

8. Write short notes on: 7+7=14

   a. Multiple alleles and their characteristics.

   b. Applications of genetics in human life.

UNIT-V

9. What is a vector? Write about different types of vectors and their role in cloning strategies. 2+12=14

10. a. What is Embryo Transfer Technology? Discuss its applications. 7

    b. Discuss about the different types of restriction enzymes and their mode of action.

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