



**2023/FYUG/ODD/SEM/  
BTCIDC-101T/123**

**FYUG Odd Semester Exam., 2023**

**( Held in 2024 )**

**BIOTECHNOLOGY**

**( 1st Semester )**

**Course No. : BTCIDC-101T**

**( Biotechnology and Human Welfare )**

Full Marks : 70

Pass Marks : 28

**Time : 3 hours**

*The figures in the margin indicate full marks  
for the questions*

**SECTION—A**

**Answer twenty questions, selecting any four from  
each Unit :**

**1×20=20**

**UNIT—I**

- 1. Define biotechnology.**
- 2. What is transgene?**
- 3. Write the full form of GMO.**

**( Turn Over )**



- (2)
4. What does DNA ligase do?
  5. Which enzymes are called as molecular scissors?

#### UNIT—II

6. Which unique enzyme is used in PCR?
7. Which technique is used in DNA fingerprinting?
8. What is RFLP?
9. What is gene therapy?
10. Name one genetic disorder.

#### UNIT—III

11. Who coined the term 'somoclonal variation'?
12. What is micropropagation?
13. What is Bt cotton?
14. What is GM food?
15. Define totipotency.



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UNIT—IV

16. What is bioremediation?
17. Define xenobiotics.
18. What is biogas?
19. What is biosensor?
20. Name any one microbe that is used in bioremediation process.

UNIT—V

21. What is bioreactor?
22. What is sterilization?
23. Name any one microbe that is used in bioprocess technology.
24. What is membrane filtration?
25. What is fermentation?



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### SECTION—B

Answer *five* questions, selecting *one* from each.

Unit :

2×5=10

#### UNIT—I

26. What is r-DNA technology? Write the basic tools of biotechnology.
27. Give a short note on the scope of biotechnology.

#### UNIT—II

28. What are cloning vectors? Give example.
29. Write a note on DNA fingerprinting.

#### UNIT—III

30. Write the limitations of somoclonal variation.
31. Explain the process of production of Bt cotton.

#### UNIT—IV

32. Write down the uses of biosensor in environmental analysis.
33. Write about sewage.



( 5 )

UNIT—V

34. What is upstream processing? Explain briefly.

35. Draw a labelled diagram of a bioreactor.

SECTION—C

Answer *five* questions, selecting *one* from each

Unit :

8×5=40

UNIT—I

36. What is the importance of GMOs? Describe the process of producing genetically modified organisms with a suitable example. 2+6=8

37. Define biotechnology. Elaborately discuss the applications of biotechnology in health care and industry. 2+3+3=8

UNIT—II

38. What is PCR? Write its working mechanism and applications. 2+3+3=8

39. Write about gene therapy. Illustrate the process used for producing recombinant human growth hormone. 3+5=8



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UNIT—III

40. Differentiate between biopesticide and biofertilizer. Briefly describe the process of plant tissue culture.  $2+6=8$
41. Describe briefly the process of somatic hybridization. 8

UNIT—IV

42. Briefly describe the process of biogas production. Point out its significance.  $6+2=8$
43. Write a note on the treatment of municipal waste and industrial effluents.  $4+4=8$

UNIT—V

44. Describe media preparation and sterilization in detail.  $4+4=8$
45. Describe in brief the process of product recovery and purification in bioprocess technology.  $4+4=8$

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