

USBT101 - Fundamentals of Biotechnology-I

1. Attempt **all** questions.
2. **All** questions carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. For **Q 2, Q 3 and Q 4** attempt **A and B OR C and D**.

Q 1 Do as directed (Any fifteen)**15**

1. Give any two examples of traditional fermented foods.
2. What is a lime water test?
3. Who is Karl Ereky?
4. Enlist biotic and abiotic factors of the environment in Environmental Biotechnology.
5. Define Animal biotechnology.
6. True or false : Green Biotechnology is also known as Pharmaceutical Biotechnology.
7. Full form of UNIDO is _____.
 1. Union National Industry Development Organisation
 2. United Nation Industrial Development Organisation
 3. Union National Industrial Disaster Organisation
 4. United Nation Industrial Defence Organisation
8. From the following select the primary aim behind creating the Flavr Savr tomato.
 - a) To increase vitamin content
 - b) To improve taste and flavor
 - c) To reduce pesticide use
 - d) To extend shelf life
9. In BT brinjal _____ pest is the primary target?
 - a) Fruit borers
 - b) Aphids
 - c) Thrips
 - d) Whiteflies
10. What is the characteristic that gives Golden Rice its yellow-orange color?
 - a) Increased beta-carotene content
 - b) Enhanced starch composition
 - c) Elevated protein levels
 - d) High levels of antioxidants
11. Select from the following the appropriate significance of producing antibodies in plants via molecular farming.
 - a) It leads to increased crop yields.
 - b) It reduces the need for water and sunlight.
 - c) It allows for the cost-effective production of therapeutic proteins.
 - d) It improves soil fertility.
12. In BT Cotton "T" stands for _____.
 - a. *thuringiensis*
 - b. *thermoamylovorans*
 - c. *anthracis*
 - d. *licheniformis*

VCD: _____ Class: **FYBT** Sem: **I** Subject: **Biotechnology**
Duration: **2 ½ Hours** Marks: **75**

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13. From the following name the organism that is commonly used in the production of human insulin through recombinant DNA technology.
a) E. coli bacteria
b) Saccharomyces cerevisiae (yeast)
c) Arabidopsis thaliana (mustard plant)
d) Spirogyra algae
14. What is the trophophase equivalent to in terms of growth curve phases?
a) Lag phase
b) Exponential phase
c) Stationary phase
d) Death phase
15. Role of enzymes in fermentation:
a) Energy production
b) Catalysts for biochemical reactions
c) Structural support
d) Storage of genetic information
16. Water and _____ are two of the most common end-products of aerobic fermentations.
a) Oxygen
b) Methane
c) Ethanol
d) Carbon dioxide
17. The device used to introduce air or oxygen into the fermentation broth is called a _____.
a) Bioreactor
b) Sparger
c) Inoculum
d) Baffle
18. Define Fermentor.
19. Acidity in fermentations usually arises from microbial activity. State whether True or False.
20. Corn steep liquor and molasses are examples of raw materials that are not waste products from the starch and sugar industries. State whether True or False.

Q. 2 A What is Modern Biotechnology? Explain in detail. 08

Q. 2 B What do you understand by Biotechnology in india? Discuss private and government centres of biotechnology. 07

OR

Q. 2 C Give an account of Red biotechnology. 08

Q. 2 D Explain Environmental Biotechnology in detail. 07

Q. 3 A What scientific processes or techniques were involved in creating Golden Rice? 08

Q. 3 B Explain how genetic engineering is employed to produce human insulin. 07

OR

Q. 3 C What specific trait did FLAVR SAVR tomatoes possess that made them unique and explain their procedure of production. 08

Q. 3 D Explain the concept of using plants as bioreactor for antibody production. 07

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- Q. 4 A** Discuss the role of different nutrient components in fermentation media. **08**
Q. 4 B Explain a typical process of Ethanol production. **07**

OR

- Q. 4 C** Elaborate on Secondary Screening. **08**
Q. 4 D Explain industrial production of Penicillin by fermentation. **07**

- Q. 5** Write Short notes on **any three** of the following **15**
- Ban on genetic food
 - Achievement of biotechnology
 - Edible vaccines.
 - Methods to measure dissolved oxygen in a fermenter
 - Agitation