



Date: 08-04-2024

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

**SECTION A - K1 (CO1)**

**Answer ALL the Questions (10 x 1 = 10)**

**1. Fill in the blanks**

a) Idiophase is also known as \_\_\_\_\_.

b) Spargers are used to \_\_\_\_\_.

c) *Spirulina* belongs to the class \_\_\_\_\_.

d) Penicillin was discovered by \_\_\_\_\_.

e) Amylase is produced using \_\_\_\_\_.

**2. State whether the following statements are TRUE or FALSE**

a) Zymology is the study of enzymes.

b) Media basically contains sugar source and mineral salts

c) Beer is the fermentation product of malted grapes.

d) Hep B vaccine is an attenuated vaccine.

e) *Pseudomonas alcaligenes* is used in the production of amino acids.

**SECTION A - K2 (CO1)**

**Answer ALL the Questions (10 x 1 = 10)**

**3. Choose the correct answer**

a) Yoghurt fermentation is carried out by  
a) *Lactobacillus plantarum* b) *Lactobacillus acidophilus* c) *Lactobacillus casei* d) *Lactobacillus bulgaricus*

b) Ultrafiltration is used to sterilize  
a) thermolabile liquids b) thermostable compounds c) medium d) all of them

c) The idli batter is a mixture of  
a) rice and dhal b) rice and green gram c) green gram and dhal d) rice and black gram

d) Industrial production of vitamin B12 is done using  
a) *Pseudomonas denitrificans* b) *Penicillium chrysogenum* c) *Bacillus subtilis* d) None of these

e) Biofilms are formed by bacteria by producing  
a) Biofertilizer b) biopesticide c) biopolymer d) organic acids

**4. Answer the following, each in about 50 words**

a) Define biomass.

b) What is downstream processing?

c) List any 2 probiotic food.

d) What are antibiotics?

e) Give any 2 examples for biofertilizers.

### SECTION B - K3 (CO2)

**Answer any TWO of the following in 500 words (2 x 10 = 20)**

**Draw diagrams / flowcharts wherever necessary**

5. Elaborate on the various range of fermentation processes.

6. Narrate the procedure for the production of recombinant insulin.

7. Explain the importance of SCP and its mass cultivation.

8. Describe the procedure of transformation of steroids.

### SECTION C – K4 (CO3)

**Answer any TWO of the following in 500 words (2 x 10 = 20)**

**Draw diagrams / flowcharts wherever necessary**

9. Describe the preservation and strain improvement methods of industrially important microbes.

10. Summarize the various sources of substrate and media for fermentation process.

11. Explain the procedure for penicillin production.

12. Explain the processes of beer and wine production.

### SECTION D – K5 (CO4)

**Answer any ONE of the following in 1000 words (1 x 20 = 20)**

**Draw diagrams / flowcharts wherever necessary**

13. Describe the structure of a fermentor. Write about the various types of fermentor.

14. Summarize the various events in citric acid production

### SECTION E – K6 (CO5)

**Answer any ONE of the following in 1000 words (1 x 20 = 20)**

**Draw diagrams / flowcharts wherever necessary**

15. Write an essay on the methods adopted for the recovery of fermentation products.

16. Elaborate on the commercial importance of microbial enzymes protease and amylase.

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