



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

SIXTH SEMESTER – APRIL 2024

UPB 6502 – MICROBIAL TECHNOLOGY

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)

(10 x 1 =

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

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|----|--|
| 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

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|-----|--|
| 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

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| 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

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| 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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