

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2023 – 2024)

B. Sc. DEGREE EXAMINATION, APRIL 2024
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SECOND SEMESTER

COURSE : MAJOR – CORE
PAPER : BASICS OF MICROBIAL TECHNOLOGY
SUBJECT CODE : 23BT/MC/BM23
TIME : 3 HOURS **MAX.MARKS:100**

| Q. No. | SECTION A (20 x 1 = 20 marks) | CO | KL |
|-----------|---|-----|----|
| I | Choose the correct answer | 1-5 | K1 |
| 1. | Which of the following microorganism has been proven to be great industrial importance? a) <i>Penicillium chrysogenum</i> b) <i>Saccharomyces cerevisiae</i> c) <i>Bacillus subtilis</i> d) <i>Streptomyces griseus</i> | | |
| 2. | Which product is not formed during fermentation a) Lactate b) Carbon dioxide c) Ethanol d) Oxygen | | |
| 3. | Which among the following is not a vegetable or fruit-based fermented product? a) Vinegar b) Wine c) Sauerkraut d) Beer | | |
| 4. | Which of the following is commonly used as a nitrogen fixer in paddy fields? a) <i>Frankia</i> b) <i>Oscillatoria</i> c) <i>Azospirillum</i> d) <i>Rhizobium</i> | | |
| 5. | Which of the following is a downstream process? a) Screening b) Product recovery c) Media formulation d) Sterilization of media | | |
| II | State whether true or false | 1-5 | K1 |
| 6. | The role of the fermentation media is to provide a high amount of nutrients and optimum conditions for the growth of microorganisms. | | |
| 7. | Functional food contains the food matrix and Nutraceuticals contains non-food matrix. | | |
| 8. | Cheddar cheese is a semi-solid cheese. | | |
| 9. | Spirulina is rich in cholesterol and low in protein. | | |
| 10 | Penicillin fermentation is an aerobic process. | | |

| | | | |
|---------------|---|-----------|-----------|
| III | Fill in the Blanks | 1-5 | K1 |
| 11. | The Continuous culture is a/an _____ culture system | | |
| 12. | _____ is the microorganism that are involved in yogurt production | | |
| 13. | The large holes in the cheese are due to _____ | | |
| 14. | The protein crystals of <i>B. thuringiensis</i> contain toxic _____ protein | | |
| 15. | _____ fermentation is the most common method for citric acid production. | | |
| IV | Match the following | 1-5 | K1 |
| 16. | Lactobacillus - SCP | | |
| 17. | Aspergillus - Biofertilizer | | |
| 18. | Nostoc - Probiotics | | |
| 19. | Spirulina - Antibiotics | | |
| 20. | Penicillium - Citric acid | | |
| Q. No. | SECTION B (8 x 2 = 16) Answer any 8 of the following in 50 words | CO | KL |
| 21. | Microbial technology | 1-5 | K2 |
| 22. | Batch culture | 1-5 | K2 |
| 23. | LAB | 1-5 | K2 |
| 24. | Disadvantages of Probiotics | 1-5 | K2 |
| 25. | Fermentation | 1-5 | K2 |
| 26. | Ripening | 1-5 | K2 |
| 27. | Sauerkraut | 1-5 | K2 |
| 28. | Bt Brinjal | 1-5 | K2 |
| 29. | BGA fertilizer | 1-5 | K2 |
| 30. | Role of Vitamin B12 | 1-5 | K2 |
| Q. No. | SECTION C (4 x 6 = 24) Answer the following in 200 words | CO | KL |
| 31. | Analyze the promising area of microbial technology. (or) | 1-5 | K3 |
| 32. | Mention the health benefits of probiotics | | |
| 33. | List the general manufacturing procedure of yogurt. (or) | 1-5 | K3 |
| 34. | Highlight the roles of nutraceuticals in human health. | | |
| 35. | Outline the steps involved in the manufacturing of soya sauce. (or) | 1-5 | K4 |
| 36. | Give your remarks on SCP with suitable example. | | |
| 37. | Reviews the product recovery in penicillin production (or) | 1-5 | K4 |
| 38. | Comment on industrial application of amylase. | | |
| Q. No. | SECTION D (2 x 20 =40) Answer the following in 1000 words | CO | KL |
| 39. | Write an essay on components and preparation of fermentation media and add a note on fermenter. (or) | 1-5 | K5 |
| 40. | Elucidate the types of cheese mentioned in your curriculum. | | |
| 41. | Given an account on the GMO and elaborately explain biotechnological impact of <i>Bacillus thuringiensis</i> in cotton plant. (or) | 1-5 | K5 |
| 42. | Enumerate the microbial production of citric acid. | | |