Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **18FP2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **FOOD MICROBIOLOGY** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course**  **Outcome** | **Marks** |
| **PART - A (10X1 = 10 MARKS)** | | | |
| 1. | Who discovered food spoilage? | CO1 | 1 |
| 2. | Why do fungi stain Gram positive? | CO1 | 1 |
| 3. | What is the science behind traditional methods of preservation? | CO2 | 1 |
| 4. | State the purpose of pasteurization. | CO2 | 1 |
| 5. | Point out the effect of electric currents in food processing. | CO3 | 1 |
| 6. | Dietary fibre feed named as? | CO3 | 1 |
| 7. | Mention some good fermented foods. | CO4 | 1 |
| 8. | Which process forms the basis of fermentation? | CO4 | 1 |
| 9. | Why do we test water quality? | CO5 | 1 |
| 10. | What is the chemical composition of Yoghurt? | CO5 | 1 |

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| **PART – B (6 X 3 = 18 MARKS)** | | | |
| 11. | How does Lactophenol cotton blue work on fungi? | CO1 | 3 |
| 12. | State the principle of Autoclave. | CO2 | 3 |
| 13. | Write the important benefits of non-thermal food preservation. | CO3 | 3 |
| 14. | Tabulate significant fermented foods with their description. | CO4 | 3 |
| 15. | Enlist the characteristics of coliforms. | CO5 | 3 |
| 16. | Write down the symptoms of food poisoning. | CO6 | 3 |

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| **PART – C (6 X 12 = 72 MARKS)**  **(Answer any five Questions from Q.no 17 to 23. Q.No 24 is a Compulsory Question)** | | | | |
| 17. | a. | Describe the factors affecting microbial growth | CO1 | 5 |
| b. | Draw the growth curves you would expect to obtain for the growth of *Staphylococcus aureus* in a broth at 12 degree Celsius and 35 degree Celsius. Label each curves. | CO1 | 7 |
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| 18. | a. | Define or Explain the following in relationship to their importance in the Food Industry  i) Food preservation ii) Adulteration of food iii) Z value  iv) F0 value v) 12 D concept | CO2 | 5 |
| b. | Describe the three principles involved in the various methods used for the preservation of foods and give one example how each principle can be achieved. | CO2 | 7 |
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| 19. | a. | Explain the mechanism of microbial inactivation by different irradiation processes. | CO3 | 6 |
| b. | Compare the benefits and side effects of pro- and prebiotics. | CO3 | 6 |
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| 20. | a. | Give a microbial species or microbial group that could be involved in the following:  i) Alcohol production in orange juice ii) Spoilage of strawberries  iii) Paralytic shellfish poisoning iv) Sauerkraut fermentation  v) Amoebic dysentery vi) Citric acid production | CO4 | 6 |
| b. | Mention the organisms involved in acetic acid production. Describe the methods employed and its applications. | CO4 | 6 |
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| 21. | a. | How to determine the quality of milk through Methylene blue reductase test? Draw a flow chart. | CO5 | 7 |
| b. | Describe what you believe are the main functions and goals of food microbiologists? | CO5 | 5 |
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| 22. | a. | List out the different staining techniques used for the identification of bacteria and fungi. And explain about Gram’s staining. | CO1 | 7 |
| b. | Discuss the differences that slow and fast freezing have on microorganisms | CO2 | 5 |
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| 23. | a. | Describe the methods of MPN and membrane filtration in the microbial examination of water. | CO5 | 7 |
| b. | Explain the steps involved in commercial sterilization process in industrial canning. | CO2 | 5 |
|  |  | **Compulsory:** | |  |
| 24. | a. | Describe the pathogenic mechanisms involved in foodborne illness for the following:  i) Entero toxigenic *Escherichia coli.*  ii) Entero invasive *Escherichia coli.*  iii) Entero hemorrhagic *Escherichia coli.* | CO6 | 6 |
| b. | Give a detailed account on preventive measures of food poisoning. | CO6 | 6 |