

**M.Sc. 3rd Semester Examination, 2023**

**MICROBIOLOGY**

*( Agricultural Microbiology & Molecular  
Biology )*

*( Practical )*

**PAPER – 396.1**

*Full Marks : 25*

*Time : 6 hours*

**Answer all questions**

*The figures in the right hand margin indicate marks*

*Candidates are required to give their answers in  
their own words as far as practicable*

- 1. Determine stomatal frequency of the supplied plant leaf sample (normal and infected)**

[Principle-2, Performance-2, Result and  
Comment-3] 7

2. Quantify the amount of indole acetic acid  
produced in the given bacterial culture medium

[Principle-2, Performance-2, Calculation  
and Result-3, Comment-1] 8

3. Laboratory note book 2

4. Viva-Voce 3

5. Internal Assessment 5



**M.Sc. 3rd Semester Examination, 2023**

**MICROBIOLOGY**

*( Community Survey and report Preparation )*

*( Practical )*

PAPER – 396.2

*Full Marks : 25*

*Time : 6 hours*

**Answer all questions**

*The figures in the right hand margin indicate marks*

*Candidates are required to give their answers in their own words as far as practicable*

1. Content and organization of the survey report 10
2. Presentation

( 2 )

- |                        |   |
|------------------------|---|
| 3. Discussion          | 5 |
| 4. Internal assessment | 5 |

7. Write short note on : 2 + 2
- (i) Sparger
- (ii) Advantages of SSF.
8. What is fermentation scale-up ? What are the factors that should be considered during fermentation scale-up ? 1 + 3

GROUP – C

Answer any **one** question from the following : 8×1

9. What is enzyme immobilization ? State the merits of enzyme immobilization. How an extracellular metabolite can be purified after fermentation ? 2 + 3 + 3
10. How oxygen level is maintained in an aerobic fermentation process ? What is mass transfer and how molecular diffusion is related with the phenomenon ? Write the example of two bioreactor that is used in SSF. 3 + 3 + 2

**Unit : MCB-303.2 (Food Microbiology)**

**GROUP – A**

Answer any **two** questions :  $2 \times 2$

11. Distinguish between food infection and food poisoning.
12. What is SCOBY in kombucha production ?
13. Write down the role of "remueurs" in champagne production.
14. What do you mean by gut-brain axis ?

**GROUP – B**

Answer any **two** questions from the following :

$4 \times 2$

15. Define Spoilage. Enlist the cause of spoilage in dairy products.

$2 + 2$

16. Classify the bacteriocins from gram positive bacteria. Write the mode of action of bacteriocins. 2 + 2
17. Write down a short note on "Malting" in beer production.
18. Describe the soy sauce making process with a schematic diagram.

**GROUP – C**

Answer any **one** question : 8 × 1

19. Describe in brief the acetic acid production through Orleans method with appropriate schematic diagram.
20. What are eubiosis and dysbiosis of gut flora ? Mention the factors that can modulated the composition of gut flora.

**[ Internal Assessment – 10 Marks ]**

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