647510 **23MSC3MicC302x** **Seat No :_____**

M.Sc. (Micro) Semester - 3 (*CBCS*) Examination
OCT/NOV-2025 (AS PER SYLLABUS YEAR JUNE-2024)
Bioprocess Engineering and Fermentation Microbiology (Core (New-23))

Time: 2:30 Hours **Marks:70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que.1 Do as directed (Any seven out of eight questions each of two marks) (14)

1) Enlist raw materials used as C-source in the fermentation industry.
2) What are growth factors? Discuss their role in fermentation process.
3) What is growth kinetics? How it is calculated?
4) What is the Oxygen Transfer rate?
5) Enlist any four fermented foods with the names of their starter cultures.
6) What do you mean by strain improvement?
7) What is single cell protein?
8) Describe uses of xanthan gum

Que.2 Answer the following (Two short questions) (14)

A) Write a short note on microbiological media
B) Explain synchronous growth
C) Process of selection of any raw materials for fermentative process

Que.3 Answer the following (Two short questions) (14)

A) Discuss various types of bioreactors
B) Explain physical & chemical methods for achieving sterility in bioprocess
C) Describe briefly batch vs continuous sterilization process

Que.4 Answer the following (Two short questions) (14)

A) Write a short note on Glutamic acid fermentation
B) Explain significance of fermented foods
C) Describe fermentation process of any stimulant beverages

Que.5 Answer the following (Two short questions) (14)

A) Write a note on Ergot alkaloids and its uses
B) Explain the production of citric acid:
C) Describe significance of microbial polysaccharides

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