

Reg. No. :

Code No.: 5574

Sub. Code: PMBM 42

M.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2022.

Fourth Semester

Microbiology — Core

FERMENTATION AND INDUSTRIAL
MICROBIOLOGY

(For those who joined in July 2017 onwards)

Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

Peptone and Soy meal are used for _____
sources

- a) Carbon (b) Minerals
- c) Lipids (d) Nitrogen

For Penicillin production, best medium is

- a) Nutrient media (b) SDA
- c) PDA (d) Corn steep liquor

Chromatography is a method to separate and
analyse

- a) Complex mixtures (b) Simple mixtures
- c) Mixed (d) None

Microorganism required for Streptomycin
production

- a) *E.coli*
- b) *Saccharomyces cereviceae*
- c) *Clostridium*
- d) *Streptomyces griseus*

Industrial Production of Vitamin-B 12 is from

- a) *Bacillus* spp. (b) *Pseudomonas* spp.
- c) *E.coli* (d) None

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

- a) Write notes on Primary and Secondary
Screening.

Or

- b) Describe Strain improvement.

- 3. The monitoring of temperature during
fermentation process is carried out by
(a) pH probe (b) aeration
(c) Temperature probe (d) Antifoam agent
- 4. Impeller in fermenter used for
(a) Mixing (b) aeration
(c) cooling (d) None
- 5. Volume of small – scale bioreactor
(a) 1 – 10 liters (b) 5 – 10 liters
(c) 1 – 20 liters (d) 10 – 20 liters
- 6. Submerged fermentations are
(a) Batch fermentation
(b) Continuous fermentation
(c) Downstream process
(d) Both (a) and (b)
- 7. RPM stands for
(a) Radium per minute
(b) Rotation per minute
(c) Revolution per minute
(d) None

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- 12. (a) Explain Microbial growth kinetics.

Or

- (b) Write about factors involved in fermentor
design.

- 13. (a) Describe notes on fluidized bed reactor.

Or

- (b) Write short notes on tower fermenter and
shake flask fermenter.

- 14. (a) Write notes on Chromatography.

Or

- (b) Describe Lyophilization and drying.

- 15. (a) Write about production of L-Lysine Amino
acids.

Or

- (b) Describe industrial production of Yeast.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Describe concepts and historical development of Industrial Microbiology.

Or

- (b) Write about industrial sterilization of equipment, media production and air.

17. (a) Write about the stages of fermentation.

Or

- (b) Write fermenter principle and factors involved in fermentor design.

18. (a) Explain industrial fermentor and its process.

Or

- (b) Explain Continuous reactor and Plug flow reactor.

19. (a) Write about Centrifugation and Filtration.

Or

- (b) Write about Precipitation and Crystallization.

20. (a) Explain the industrial production of Organic acid.

Or

- (b) Explain the industrial production of Amylase enzyme.