

M.Sc. (Micro) Semester - 3 (CBCS) Examination**Oct/Nov-2021 (NEW COURSE)****Bioprocess Engineering and Fermentation Microbiology (Core (New))****Time: 2:30 Hours****Marks: 70****Instructions:**

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

SECTION-I**1. Attempt the following:**

- A. Explain the batch culture kinetics model. **07**
- B. Describe in detail starch and cellulose as microbial media. **07**

OR

1. Describe the growth kinetics of continuous culture in detail. **14**

2. Attempt the following:

- A. Write note on oxygen transfer rate and its importance in activated sludge treatments. **07**
- B. Explain design and use of stirred tank reactor in detail. **07**

OR

2. Describe the continuous sterilization and its advantages in industrial perspective. **14**

3. Do as directed: (any seven out of eight questions each of one mark) **07**

1. Define the composition of industrial media.
2. What are growth factors? Mention its importance.
3. What is the role of mineral source in industrial media?
4. Explain the exponential phase in batch culture
5. Draw the labelled diagram of airlift reactor.
6. Define chemical sterilization in brief.
7. Enlist disadvantage of batch culture.
8. Explain how sterilization of oxygen is carried out.

SECTION-II**1. Write a note on:**

- A. Fermented food prepared from milk. **07**
- B. Write on production of a stimulant beverage using coffee. **07**

OR**1. Attempt the following:**

- A. Write a note on fermentative production of glutamic acid and its uses. **07**
- B. Explain in detail preparation of the fermented food from corn. **07**

2. What is SCP? Explain microbial SCP production and its application. **14**

OR**2. Attempt the following:**

- A. Explain production and application of xanthan gum in detail. **07**
- B. Write short note on Ergot Alkaloids and mention their uses. **07**

2. Do as direct (any seven out of eight questions each of one mark) **07**

1. Explain importance of riboflavin.
2. Explain in brief what sauerkraut is.
3. Mention the sources and importance of vitamin B12.
4. Mention organisms used and their importance in bread making.
5. Explain the uses of citric acid.
6. Describe nutritional value of SCP in brief.
7. What are microbial polyesters? Explain their applications.
8. Enlist the Itaconic acid producing organisms.
