

- All questions are compulsory.
- Draw diagram wherever necessary

1.1(A) Define the following terms.(Any Two) (04)

1. Inoculum development
2. Spargers
3. Fermentor
4. Solid state Fermentation

1.1(B) State True or False and correct if the statement is False.(Any Two) (04)

1. Surface fermentation can be done by continuous method.
2. Solid state fermentation can be carried out in stirred tank reactors.
3. Curdling of milk is an example of fermentation.
4. Injection port is absent in stirred tank fermentors.

1.1(C) Answer the following. (Any Two) (12)

1. Give an overview of fermentor design.
2. Significance and applications of batch fermentation.
3. How to maintain aseptic conditions during fermentation.
4. Give significance and applications of continuous fermentation.

2(A) Define the following terms. (Any Two) (04)

1. Lag Phase
2. Synchronous Growth
3. Turbidostat
4. Stationary phase

2 (B) State True or False and correct if the statement is False. (Any Two) (04)

1. Death phase is the first phase in growth curve.
2. There are total four phases in a growth curve.
3. Bacterial cells tend to grow exponentially.
4. Nutrient Factors doesn't influence the bacterial cell growth.

2(C) Answer the following. (Any Two) (12)

1. Effect of environment and nutrient factors on microbial growth.
2. Write in brief about graph of growth curve.
3. Give details of synchronous growth.
4. Write an overview of microbial growth kinetics.

3 (A) Define the following terms. (Any Two) (04)

1. Colorimeter
2. Mobile Phase
3. Chromatogram
4. Beer's law

Contd/...2

Q.3(B) State True or False and correct if the statement is False.(Any Two)

(04)

1. Ordinary filter paper is used for chromatography.
2. Prism splits the light into 2 components.
3. Silica Gel is used in TLC.
4. Absorbance is directly proportional to path length.

Q.3(C) Answer the following. (Any Two)

(12)

1. Explain principle and application of gel permeation chromatography.
2. Explain principle and application of ion-exchange chromatography.
3. Give details about working and principle of colorimeter.
4. Elaborate about Beer's-Lambert's Law.

Q.4 Write Short Notes on: (Any Three)

(15)

1. Column packing in column chromatography.
2. Write about: Light source, Diffraction, UV wavelength.
3. Direct and indirect methods of measuring bacterial growth.
4. Solid state fermentation
5. Design of fermentor.
6. Anaerobic fermentation

\*\*\*\*\*