P. P. SAVANI UNIVERSITY

Fifth Semester of B.Sc. Examination
December-2021
SSMB3150–Industrial Microbiology II
15.12.2021,Wednesday Time: 09:00 a.m. to 11:30 a.m. Maximum Marks: 60

Instructions:
1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

Section-I (Total Marks - 30)

Q.1 Short Questions **[10]**

1.1 Objectives **[05]**

1.1a Which of the following instrument works on the principle of batch sterilization?
- **A** Incubator
- **B** Autoclave
- **C** Centrifuge
- **D** LAF

1.1b The examples of dry heat sterilization are
- **A** Incineration
- **B** Flaming
- **C** Red Heat
- **D** All of the above

1.1c Which of the following technique uses sound waves for cell disruption?
- **A** Homogenization
- **B** Sonication
- **C** Blender
- **D** Mortar and Pestle

1.1d _____is not the product of cell disruption?
- **A** DNA
- **B** RNA
- **C** Protein
- **D** Water

1.1e The substrate used by microorganisms to produce single-cell proteins includes
- A Methane gas
- B Industrial wastes
- C Agricultural wastes
- D All of the above

1.1f The protein content called novel is produced by using

- **A** Yeast
- **B** Bacteria
- **C** Fungi
- **D** Microorganisms

1.1g The bacteria which carries the lactic acid fermentation is

- **A** Lactobacillus
- **B** L. cerevisiae
- **C** Wilmot cerevisiae
- **D** Saccharomyces

1.1h Which of these is not a product of fermentation?

- **A** Lactate
- **B** Oxygen
- **C** Carbon dioxide
- **D** Ethanol

1.1i Fermentation occurs in the

- A Presence of Oxygen
- B Absence of oxygen
- C Presence of Nitrogen
- D Presence of Carbon

1.1j Down stream processing occurs after

- **A** Biosynthetic phase
- **B** Seperation phase
- **C** Purification phase
- **D** All of these

1.2 Answer the Following: **[05]**

1.2a Define : Fermentation
1.2b What is Sterilization?
1.2c What are advantages of Continuous Sterilization?
1.2d What are Oospores?
1.2e Define : Fungi

Q.2 Short Notes (Attempt any two) **[06]**

A Properties of useful Industrial Microorganisms
B Filtration sterilization
C Yeast Inoculum Development

Q.3 Explain in detail (Attempt any two) **[14]**

A Moist Heat Sterilization
B Bacterial Inoculum Development
C Dry Heat Sterilization

Section-II (Total Marks - 30)

Q.1 Short Questions [10]

1.1 Objectives [05]

1.1a In Thin layer chromatography, Stationary phase is

A Solid
B Liquid
C Gas
D None

1.1b Which of the following is not included in upstream process?

A Effluent treatment
B Media preparation
C Inoculum development
D Raw material

1.1c The effectiveness of solvent can be measured by the

A Distribution coefficients
B Selectivity
C Both A and B
D Diffusivity

1.1d A common filter medium is the cloth filter generally made of

A Canvas
B Synthetic fabrics
C Metal or glass filter
D All of these

1.1e After fermentation ethanol is recovered by

A Centrifugation
B Distillation
C Filtration
D Cell disruption

1.1f Which of the following organism is not used in traditional fermentation?

A *E.coli*
B *Bacillus*
C *Pseudomonas*
D *Yeast*

1.1g In lactic acid fermentation, the final electron acceptor is

A Lactic acid
B Pyruvic acid
C NAD
D ATP

1.1h SCP stands for
- A Single cell protein
- B Single culture protein
- C Somatic cell protein
- D Somatic culture protein

1.1i Which of the following amylase is not produced by organisms?
- A Salivary amylase
- B Pancreatic amylase
- C Gastric amylase
- D Hepatic amylase

1.1j The yield of antibiotic depends upon
- A Age of the inoculum
- B PH of the medium
- C Composition of the medium
- D All of above

1.2 Answer the Following: (MCQ/Short Question/Fill in the Blanks) **[05]**

1.2a Give one example of antibiotic producing actinomycetes.
1.2b Give one example of amylase producing bacteria.
1.2c Give one industrial use of ethanol.
1.2d Define product purification.
1.2e What is down stream process?

Q.2 Short Notes (Attempt any two) **[06]**

A Describe purification of fermentation product by any one chromatographic technique.
B Give role of centrifuge in down stream processing.
C Describe ethanol production by bacteria.

Q.3 Explain in detail (Attempt any two) **[14]**

A Discuss lactic acid fermentation in detail.
B Discuss Amylase production.
C Write a note on cell disruption process.