

Department : MICROBIOLOGY

Semester VI

Subject Title : INDUSTRIAL MICROBIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10×2=20)

Answer **ALL** the questions,

1. Screening.
2. Yeast.
3. Fermentation.
4. Impeller.
5. Downstream processing.
6. Centrifugation.
7. Give any two name of vitaminB12 producing organisms.
8. Riboflavin.
9. Give any two name of acetic acid producing organisms .
10. Ethanol.

SECTION-B (5×5=25)

Answer **ALL** the questions.

1. a) Give an account on history of industrial microbiology.
(or)
b) Brief note on industrial important microbes .
2. a) Comment on sterilization of fermentation equipment.
(or)
b) Write a note on culture media in fermentation .
3. a) Brief note on filtration.
(or)
b) Comment on cell disruption
4. a) Write short note on stages of production of penicillin.
(or)
b) Write briefly on production of riboflavin.
5. a) Describe the amylase production.
(or)
b) Briefly note on glutamic acid production.

SECTION-C (3×10=30)

Answer any **THREE** questions.

1. Discuss in detail about the preservation of industrial important strains.
2. Write a detailed note on parts and their function of a typical fermenter.
3. Describe the immobilization of enzymes and their application.
4. Discuss the vitamin B12 production.
5. Elaborate study on production of vinegar .

**URUMU DHANALAKSHMI COLLEGE
TIRUCHIRAPPALLI – 620 019**

B.Sc. Degree Examination, April 2020

Department : MICROBIOLOGY

Semester VI

Subject Title : INDUSTRIAL MICROBIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10×2=20)

Answer **ALL** the questions,

1. Industrial strain.
2. *Saccharomyces cerevisiae*.
3. Inoculum.
4. Baffels.
5. Cell disruption.
6. Filtration.
7. Give any two name of riboflavin producing organisms.
8. Cyanocobalamine.
9. Give any two name of acetic acid producing organisms .
10. Biodegradation.

SECTION-B (5×5=25)

Answer **ALL** the questions.

1. a) Give an account on strain improvement.
(or)
b) Brief note on screening of industrial important microbes .
2. a) Comment on air lift fermenter.
(or)
b) Write a note on culture media in fermentation .
3. a) Brief note on centrifugation.
(or)
b) Comment on immobilization of enzymes.
4. a) Write short note on stages of production of streptomycin.
(or)
b) Write briefly on production of rabies vaccine.
5. a) Describe the amylase production.
(or)
b) Briefly note on protease production.

SECTION-C (3×10=30)

Answer any **THREE** questions.

1. Discuss in detail about the historical development of industrial microbiology.
2. Write a detailed note on parts and their function of a typical fermenter.
3. Describe the downstream processing.
4. Discuss the penicillin production.
5. Elaborate study on production of ethanol .

III Bsc Microbiology
Microbial Biotechnology AND BIOETHICS
SET-2

MARKS: 75

I Answer the following .

10x2 = 20 marks

1. Transformation .
2. Bio-degradation .
3. Streptokinase .
4. Ti plasmid .
5. Biofertilizer .
6. Nitrogen fixation .
7. Gene cloning .
8. Trade secrets .
9. Insulin therapy .
10. Herbicide resistant plants .

11
Answer the following.

1. Define Biotechnology and explain the important milestones in this field.

(or)

Explain in detail about the production and applications of streptomycin.

2. Describe in detail about the production and applications of VAM as Biofertilizer.

(or)

Write briefly about the production and applications of Bio-plastics.

3. Discuss about the various pharmaceutically valuable compounds from Microalgae.

(or)

Explain the production and uses of Bioethanol.

4. Explain in detail about the development of Virus-resistant plants.

(05)

What are the types of gene therapy. Illustrate with suitable examples.

5. Write in detail about the various Principles of Bio-ethics and ethical committee. (05)

Explain about the ethical concerns of human gene therapy.

OR Write any three 3x10=30 marks.

1. Explain in detail about the production and application of recombinant vaccines.

2. Explain how the microalgae can be used as food and feed.

3. Give an account on Microbial production of Bio-pesticides.

4. Write in detail about the methods of creating transgenic mice.

5. What are the ethical issues in euthanasia.

III - BSc - Major based Elective

Recombinant DNA - Technology

I. ANSWER ALL QUESTIONS

10 X 2 = 20

1. Define Molecular Scissor
2. What is plasmid
3. Write the functions of Endonuclease enzyme
4. Define Cohesive end ligation
5. Write the Properties of pUC Vector
6. What is Cosmid
7. What is transformation
8. What is Micro and Macro injection
9. Define RAPD & RFLP
10. Define DNA microarray.

II. ANSWER ALL QUESTIONS 5x5 = 25

11.

a. Write about milestones in r-DNA Technology

[OR]

b. What are steps involved in chemical Synthesis of DNA.

12. What is enzyme and Write the properties & functions of DNA polymerase

[OR]

b. Write the functions of Topoisomerase

13.

a. Write the properties of Bacterial artificial Chromosome

[OR]

b. Write the properties of λ phage Vector

14. Write the applications of recombinant DNA technology

[OR]

b. What are steps involved in Southern blotting

18. a. Write about Marker inactivation of Selection and Screening of recombinants

[OR]

b. Explain about method of Biolistic [gene gun].

III ANSWER ANY THREE 3x10=30

16. What are restriction enzymes? Explain their types & role in developing recombinant DNA

17. Define the detailed procedure of construction of c-DNA library

18. Briefly explain about the principle & steps involved in polymerase chain reaction

19. Explain in detail about DNA modifying enzymes

20. Discuss about Hybrid Vectors phagemid & cosmid

III - BSc - Major based Elective

Recombinant DNA Technology

I Answer All Questions

10x2 = 20

1. Define gene cloning
2. What is blunt end ligation
3. What is Helicase
4. Define Vector
5. Write properties of phagemid
6. What is Nutritional Complementation
7. Define Transformation
8. Write the applications of c-DNA library
9. Northern blotting - Define
10. Write any four applications of r-DNA technology

II. ANSWER ALL QUESTIONS

50 x 50 = 2500

11.
a. What are the major steps involved in gene cloning
[OR]

b. Write purification & isolation of plasmid DNA
[OR]

12.
a. Write the properties of DNA ligase
[OR]

b. Write in detail about YAC

13.
a. Define & Properties of artificial Vector pBR 322
[OR]

Write about Type II Restriction endonuclease

14.
a. Discuss about Genetic method of selection & Screening of recombinants
[OR]

b. Explain about Western blotting

15.
a. Explain RFLP & their applications
[OR]

b. Discuss about DNA microarray analysis

III. ANSWER ANY THREE

3x10=30

16. Briefly explain about DNA finger printing
17. Explain in detail about Gene / DNA transfer techniques
18. Write about mode of action, properties, applications of Restriction Endonuclease
19. Explain gene cloning techniques
20. Write about isolation & purification of RNA.

III Bsc Microbiology .
Microbial Biotechnology AND BIOETHICS

SET - 2

MARKS: 75

I Answer the following .

10x2 = 20 marks

1. Transformation .
2. Bio-degradation .
3. Streptokinase .
4. Ti plasmid .
5. Biofertilizer .
6. Nitrogen fixation .
7. Gene cloning .
8. Trade secrets .
9. Insulin therapy .
10. Herbicide resistant plants .

Answer the following.

1. Define Biotechnology and explain the important milestones in this field.

(05)

Explain in detail about the production and applications of streptokinase.

2. Describe in detail about the production, storage and applications of VAM as Biofertilizer.

(05)

Write briefly about the production and applications of Bio-plastics.

3. Discuss about the various pharmaceutically valuable compounds from Microalgae.

(05)

Explain the production and uses of Bioethanol.

4. Explain in detail about the development of Virus-resistant plants.

(05)

What are the types of gene therapy. Illustrate with suitable examples.

5. Write in detail about the various Principles of Bio-ethics and ethical committee.

(05)

Explain about the ethical concerns of human gene therapy.

Q

Write any three

3x10=30 marks.

1. Explain in detail about the production and application of recombinant vaccines.
2. Explain how the microalgae can be used as food and feed.
3. Give an account on Microbial production of Bio-pesticides.
4. Write in detail about the methods of creating transgenic mice.
5. What are the ethical issues in euthanasia.

Class - B.sc – III year
DEPARTMENT OF MICROBIOLOGY URUMU
DHANALAKSHMI COLLEGE KATTUR, TRICHY – 19.Subject –
Food Microbiology

Part A

- 1) Write the advantages of using microorganisms as a food source.
- 2) Define pasteurization
- 3) Explain HACCP
- 4) Define Sauerkraut
- 5) What is mean by Algal toxins
- 6) Define Probiotics
- 7) Define Amoebiosis
- 8) Define Yoghurt
- 9) Define EPA

Part B

- 10) a) Discuss the physicochemical properties of food
or
b) Explain food safety and control hazards.
- 11) a) Write about food sanitation
or
b) Briefly explain how microorganisms are used in food industries
- 12) a) Explain in detail on Mycotoxins.
or
b) Write in detail on Amoebiosis.
- 13) a) Explain in detail about Food borne diseases caused by *Staphylococcus*. or
b) Explain in detail on Food poisoning caused by *Vibrio parahaemolyticus*
- 15) a) Give a short note on Advantages of Probiotics.
or
b) Explain in detail on Cheese production.

Part C

- 16) Write the essay about factor influencing microbial growth in food
- 17) What is food preservation and briefly explain methods of food preservation
- 18) Briefly explain the food borne disease caused by Hepatitis
- 19) Explain in detail on Preservation of Meat and Meat products.
- 20). Explain in detail on Food borne disease caused by *Escherichia coli*

Class - B.sc – III year
DEPARTMENT OF MICROBIOLOGY URUMU DHANALAKSHMI COLLEGE
KATTUR, TRICHY – 19.
Subject – Food Microbiology

PART-A

- 1) Write any two physical properties of food
- 2) Define water activity
- 3) Differentiate pasteurization and sterilization
- 4) Explain HACCP
- 5) Define Prebiotics
- 6) Write any two enzymes involved in fermentation of cheese
- 7) Define Saxitoxins
- 8) Define Trophozoites
- 9) Write any two diagnostic method for Clostridium
- 10) Define Synbiotics

Part B

- 11) a) Briefly explain physical method of food preservation
or
b) Discuss how microorganisms are used in food industries.
- 12) a) Discuss the important and types of microorganisms present in food
or
b) What is food preservation and explain following methods chemical and biological
- 13) a) Write a short note on Yoghurt fermentation
or
b) Explain in detail on *Campylobacter Jejuni*
- 14) a) Write the Application of microbial enzymes in food fermentation
or
b) Explain in detail on Hepatitis A
- 15) a) write in detail on production of Sauerkraut
or
b) Write in detail on fermented beverage Beer

Part C

- 16) Give an account on factor affecting the microbial growth in food
- 17) Write the essay about food safety and control hazard
- 18) Explain in detail on Spoilage and Preservation of Cereals
- 19) Discuss in detail on food borne disease caused by Salmonella
- 20) Explain briefly on Contamination and Preservation of vegetables and fruits.