

**CREDIT BASED SIXTH SEMESTER B.Sc. DEGREE EXAMINATION  
APRIL 2010**

**MICROBIOLOGY**

**FOOD, DAIRY AND INDUSTRIAL MICROBIOLOGY**

Time: 3 Hrs

Max. Marks: 70

**PART – A**

- I. Answer any TEN of the following. 1x10=10
- a) Perishable food
  - b) Pigment production in milk
  - c) Food intoxication
  - d) SPC
  - e) MPN
  - f) Synthetic Media
  - g) Batch Sterilization
  - h) Proteolysis
  - i) Antifoam Agents
  - j) Stock Culture
  - k) Hops
  - l) Molasses

**PART – B**

**Answer any TWO complete questions from each unit.**

**UNIT – I**

- II. a) Explain any two methods of food examination. 06  
 b) Write a note on chemical properties that affect spoilage of foods. 04
- III. a) Discuss food presentation by canning. 06  
 b) What are preservatives? Name any four. 04
- IV a) What are food borne infections? Discuss Botulism. 06  
 b) Write a note on Microbiology of Idli. 04

**UNIT – II**

- V. a) Discuss pasteurization of milk. 06  
 b) Write a note on microbes in milk. 04
- VI. a) Explain the types of dye-reduction testis used to grade milk quality. 06  
 b) Write a note on Turbidity Test for milk. 04
- VII. a) Explain the methods of milk sterilization. 06  
 b) Give a note on cheese making. 04

**UNIT – III**

- VIII. a) Explain the types of media used in industrial production using microbes. 06  
 b) Write a note on pH and temperature control during fermentation. 04
- IX. a) Discuss strain development for the industrial use. 06  
 b) Write a note on factors affecting media preparation. 04
- X. a) Discuss the industrial production of vinegar. 06  
 b) Write a note on extraction and purification of penicillin. 04

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CREDIT BASED SIXTH SEMESTER B.Sc. DEGREE EXAMINATION APRIL 2015

**BOTANY**

PAPER VII - PLANT BIOTECHNOLOGY

Time: 3 Hrs

Max. Marks: 80

**Instructions:**

1. Answer both Part A & Part B.
2. Answer two full questions from each unit.
3. All questions in Part B carry equal marks.
4. Draw diagrams wherever necessary.

**PART – A**

1. Answer **any TEN** of the following: **10x2=20**
- a) What are the advantages of microbially produced flavours?
  - b) Mention the role of any two macronutrients in tissue culture media.
  - c) What is the role of Sodium Chloride in the studies involved in DNA?
  - d) Define redifferentiation.
  - e) What are the microbial strains used for industrial production of cheese and Vit B12?
  - f) What is somatic hybridization? Give its application.
  - g) Write the principle involved in the production of synthetic seeds.
  - h) What is transformation of cells? Mention the methods of screening of transformed cells.
  - i) State the factors that influence fermentation.
  - j) Differentiate between turbidostat and chemostat.
  - k) Give the application of gene cloning in the development of disease resistant plants.
  - l) What is reverse transcription? Mention its role in genetic engineering studies.

**PART – B**

**UNIT – I**

Answer **any TWO** of the following: **2x10=20**

2. a) Write a note on the steps involved in *in-vitro* micropropagation **5**
- b) Write about the contribution of any two scientists to the development of tissue culture **3**
- c) What are androgenic plants? Write their significance. **2**
3. a) Explain the steps involved in the isolation and culturing of protoplasts. **5**
- b) Write a note on suspension culture. **3**
- c) Differentiate between hybrids and cybrids **2**
4. a) What are Somaclonal variations? Write a note on the mechanism and its applications. **5**
- b) What is meristem culture? Give its applications. **3**
- c) Give the significance of hormones in *in-vitro* micropropagation technique. **2**

**UNIT – II**

Answer **any TWO** of the following: **2x10=20**

- |    |    |   |   |
|----|----|---|---|
| 5. | a) | Explain the steps of Agromediated gene transfer technology.                                     | 5 |
|    | b) | Yeast is a plant genetic model. Substantiate.   | 3 |
|    | c) | Write the disadvantages of gene cloning technique.  | 2 |
| 6. | a) | Explain the production of golden rice & flavr savr tomato.                                      | 5 |
|    | b) | What is herbicide tolerance? How is it achieved?  | 3 |
|    | c) | Mention any four milestones in the field of rDNA technology.                                    | 2 |
| 7. | a) | Write a note on a) P <sup>BR 322</sup>  |   |
|    |    | b) Bt toxins  | 5 |
|    | b) | Mention the physical methods of gene transfer into living cells. Add a note on any one of them. | 3 |
|    | c) | What is restriction digestion?  | 2 |

### UNIT – III

Answer **any TWO** of the following.

**2x10=20**

- |     |    |   |   |
|-----|----|---|---|
| 8.  | a) | Write a note on the following:  |   |
|     |    | 1) Continuous fermentation  |   |
|     |    | 2) Need for Biosafety   | 5 |
|     | b) | What is monolayer culture? Write its applications.                                      | 3 |
|     | c) | State the principle involved in a bioreactor.   | 2 |
| 9.  | a) | Explain   |   |
|     |    | 1) Packed bed bioreactor  |   |
|     |    | 2) SCP  | 5 |
|     | b) | Give the flow chart representation in the industrial production of penicillin.          | 3 |
|     | c) | Mention the ethical issues concerning biotechnological research and developed products. | 2 |
| 10. | a) | Narrate the steps leading to the industrial production of beer.                         | 5 |
|     | b) | Write a note on biohazards?   | 3 |
|     | c) | What are edible vaccines? Give an example.  | 2 |

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**CREDIT BASED SIXTH SEMESTER B.Sc. DEGREE EXAMINATION  
APRIL 2012**

**MICROBIOLOGY**

**FOOD, DAIRY AND INDUSTRIAL MICROBIOLOGY**

**Time: 3 Hrs**

**Max. Marks: 70**

**PART – A**

- I. Answer any TEN of the following. **1x10=10**
- a) Mycotoxins
  - b) Pasteurization
  - c) Vinegar
  - d) Preservatives
  - e) DMC
  - f) Baffle
  - g) Resazurin Test
  - h) Salmonellosis
  - i) Photobioreactor
  - j) Stringy Milk
  - k) Botulism
  - l) Lyophilization

**PART – B**

**Answer any TWO complete questions from each unit.**

**UNIT – I**

- II. a) Discuss food preservation by Canning. **06**  
b) Write a note on Ensilage. **04**
- III. a) Explain any two methods of examination of food. **06**  
b) Write a brief note on contamination of fruits and vegetables. **04**
- IV. a) Discuss Staphylococcal food poisoning. **06**  
b) Write a note on Food Preservation by low temperature. **04**

**UNIT – II**

- V. a) Discuss the different types of microbes in milk. **06**  
b) Write a note on Phosphatase Test for milk. **04**
- VI. a) Discuss briefly on the sources of microbial contamination of milk. **06**  
b) Write a note on proteolytic activity of microbes in milk. **04**
- VII. a) Discuss the methods of sterilization of milk. **06**  
b) Write briefly on Yoghurt and Cheese. **04**

**UNIT – III**

- VIII. a) Discuss the industrial production of citric acid. **06**  
b) Write a note on Corn Steep Liquor. **04**
- IX. a) Discuss the strain development for the industrial use. **06**  
b) Write a note on synthetic media for industrial production. **04**
- X. a) Discuss the industrial production of wine. **06**  
b) Mention the methods of preservation of stock cultures. **04**

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**CREDIT BASED SIXTH SEMESTER B.Sc. DEGREE EXAMINATION APRIL 2013**

**MICROBIOLOGY**

**Food, Dairy and Industrial Microbiology**

**Time: 3 Hrs**

**Max. Marks:**

**80**

**Note: Draw diagrams wherever necessary.**

**PART – A**

**I. Answer any Ten of the following.**

**2x10=20**

- a) Synthetic Media
- b) SPC
- c) Preservatives
- d) Impeller
- e) Coliforms
- f) Phosphatase Test
- g) CSL
- h) Acidophilus Milk
- i) HTST Pasteurization
- j) Mycotoxins
- k) Ropy Milk
- l) Batch Sterilization

**PART – B**

**Answer any two complete questions from each unit**

**UNIT – I**

**II. a) Discuss the contamination of Fruits and Vegetables.**

**06**

**b) Write a note on Ensilage.**

**04**

**III. a) Discuss the standards and criteria for food quality control.**

**06**

**b) Write a note on Salmonellosis.**

**04**

**IV. a) Discuss Food Preservation by Canning.**

**06**

**b) Write a brief note on Contamination of Meat.**

**04**

**UNIT – II**

**V. a) Discuss the different types of Microbes in Milk.**

**06**

b) Write a note on sterilization of Milk.  
**04**

**VI.** a) Discuss the Biochemical Activities of Microbes in Milk.  
**06**

b) Write a note on cheese and butter milk.  
**04**

**VII.** a) Discuss the dye reduction tests for milk.  
**06**

b) Write a note on DMC.  
**04**

### **UNIT – III**

**VIII.**a) Discuss the industrial production of Penicillin.  
**06**

b) Write a note on Strain Development for Industry.  
**04**

**IX.** a) Explain the procedure of Wine making.  
**06**

b) Write a note on media sterilization in industry.  
**04**

**X.** a) Discuss the industrial production of Ethanol.  
**06**

b) Write a note on stock culture collection centers.  
**04**

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## CREDIT BASED SIXTH SEMESTER B.Sc. DEGREE EXAMINATION - APRIL 2014

**MICROBIOLOGY****FOOD, DAIRY AND INDUSTRIAL MICROBIOLOGY**

Duration: 3 Hours

Max Marks: 80

Note: Draw diagrams wherever necessary.

**PART A**

- I. Answer any TEN of the following: 2x10=20
- a) Aflatoxin
  - b) Stormy Fermentation
  - c) Radiation
  - d) Bioreactor
  - e) SPC
  - f) Ensilage
  - g) Citric Acid
  - h) Viable Count
  - i) Stock Culture
  - j) Phosphatase Test
  - k) Ethanol
  - l) Gassy Fermentation

**PART-B**

Answer any TWO complete questions from each unit

**UNIT-I**

- II. a) Discuss the different chemical preservatives. 06  
 b) Write a note on contamination of sea food. 04
- III. a) Discuss food intoxication by Staphylococcus. 06  
 b) Write a note on pickles. 04
- IV. a) Discuss the contamination of fruits and vegetables. 06  
 b) Write a brief note on food infection by Salmonella. 04

**UNIT-II**

- V. a) Discuss the sources of microbial contamination of milk. 06  
 b) Write a note on cheese and yoghurt. 04
- VI. a) Discuss sterilization as a method of preservation of milk. 06  
 b) Write a note on DMC. 04
- VII. a) Discuss Pasteurization as a method of preservation of milk. 06  
 b) Write a note on MBRT. 04

**UNIT-III**

- VIII. a) With a neat labelled diagram discuss the component parts of an Ideal Fermentor. 06  
 b) Write briefly on the production of Wine. 04
- IX. a) Discuss the media for fermentation. 06  
 b) Write a note on Riboflavin. 04
- X. a) Explain the industrial production of Vinegar. 06  
 b) Write a note on preservation of stock cultures. 04

**CREDIT BASED SIXTH SEMESTER B.Sc. DEGREE EXAMINATION APRIL 2015****MICROBIOLOGY – VII****Food, Dairy and Industrial Microbiology****Duration: 3 Hours****Max Marks: 80****Note: Draw diagrams wherever necessary.****PART A****I. Answer any TEN of the following:****10×2=20**

- m) Chemical preservatives
- n) Perishable Foods
- o) Ensilage
- p) Mycotoxins
- q) Ropy Milk
- r) Ultra Heat Treatment For Milk
- s) SPC
- t) Whey
- u) Adjuvant
- v) Hops
- w) Stock Culture
- x) Bacterial strains used in Vitamin B<sub>12</sub> Production.

**PART-B****Answer any TWO complete questions from each unit:****UNIT-I**

- II.** a) What is Canning? Explain in detail the steps involved in canning. **06**
- b) Describe preservation of food by freezing. **04**
- III.** a) Explain food poisoning by Clostridium botulinum. **06**
- c) Discuss food infection by Salmonella. **04**
- IV.** a) Give an account of standards of food quality control. **06**
- b) Write a note on microorganisms in idli. **04**

**UNIT-II**

- V.** a) Discuss the biochemical activities of microorganisms in milk. **06**
- b) Write the sources of milk spoilage. **04**
- VI.** a) Describe the principle and methods of dye reduction tests for milk. **06**
- b) Write a note on Direct Microscopic Count. **04**
- VII.** a) List out the types and properties of fermented dairy products. **06**
- c) Give an account of Pasteurization. **04**

**UNIT-III**

- VIII.** a) Describe parts and working principles of an ideal fermentor. **06**
- c) What are the methods of foam control in fermentation? **04**
- IX.** a) Describe the following culture media and product obtained from those media. **06**
- i) Corn Steep Liquor ii) Molasses iii) Sulphite Waste Liquor
- b) What are techniques of strain improvement for industrial production? **04**
- X.** a) Explain the industrial production of Penicillin. **06**



b) Give an account of vinegar production by trickling method.

**04**

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## CREDIT BASED SIXTH SEMESTER B.Sc. DEGREE EXAMINATION – APRIL 2016

**MICROBIOLOGY****FOOD, DAIRY AND INDUSTRIAL MICROBIOLOGY**

Duration: 3 Hours

Max Marks: 80

Note: Draw diagrams wherever necessary.

**PART A**

- I. Answer any **TEN** of the following: 2x10=20
- a) Food Microbiology
  - b) Baffles
  - c) Canning
  - d) DMC
  - e) Must
  - f) *Bacillus cereus*
  - g) Turbidity Test
  - h) Molasses
  - i) Milk Pasteurization Temperature.
  - j) Osmotic Pressure
  - k) Cheese
  - l) Strain Development.

**PART-B****UNIT-I**

- Answer any **TWO** complete questions of the following: 10x2=20
- II. a) Discuss the contamination of Meat. 06  
b) Write a note on Botulism. 04
  - III. a) Discuss preservation of food by Radiation. 06  
b) Write a note on Mycotoxins. 04
  - IV. a) Discuss the standards and criteria for food quality control. 06  
b) Write a brief note on Shigellosis. 04

**UNIT-II**

- Answer any **TWO** complete questions of the following: 10x2=20
- V. a) Discuss the different types of Microbes in milk. 06  
b) Write a note on Standard Plate Count. 04
  - VI. a) Discuss the Dye Reduction Tests for Milk. 06  
b) Write a note on Proteolytic and Lipolytic activities of microbes in milk. 04
  - VII. a) Discuss the different types of fermented dairy products. 06  
b) Write a note on Acidophilous Milk and Butter Milk. 04

**UNIT-III**

- Answer any **TWO** complete questions of the following: 10x2=20
- VIII. a) Discuss the industrial production of Vitamin B12 06  
b) Write briefly on CSL and SWL. 04
  - IX. a) Discuss the industrial production of Streptomycin. 06  
b) Write a brief note on Media sterilization in industry. 04
  - X. a) Discuss the industrial production of Beer. 06  
b) Write a note on the Agitating device used in Fermentors. 04