

**III SEMESTER M.Sc. BIOTECHNOLOGY OPEN BOOK
EXAMINATION SEPTEMBER/OCTOBER-2020**

BT 3.1: INDUSTRIAL MICROBIOLOGY

Time: 3 Hours

Max. Marks: 80

Instruction: Answer all the sections.

Section A

Write a short note on any **FOUR** of the following

4 × 5 = 20

1. Biosensors
2. Ultrafiltration
3. Freeze dryers
4. Microbial biomass
5. Carbon source
6. Feed-back culture

Section B

Answer any **THREE** questions from the following

3 × 10 = 30

7. Explain the growth rate and cell cycle.
8. Briefly explain different types of fermenters.
9. Explain scale up operation and control of bioreactors .
10. Write a note on rheological properties of medium.
11. Explain mechanical and non-mechanical methods involved in disintegration of microorganisms.

Section C

Answer any **TWO** questions from the following

2 × 15 = 30

12. Give an account on batch culture and continuous culture.
 13. Discuss about downstream processing.
 14. Write an account on microbial production of vitamins.
 15. Give an account of genetically engineered bacteria as biopesticides
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BT 3.2: GENE TECHNOLOGY

Time: 3 Hours

Max. Marks: 80

Instruction: Answer all the sections.

Section A

Answer any **FOUR** questions from the following

4 × 5 = 20

1. Shuttle vectors
2. MALDI-TOF
3. Chromosome walking
4. Applications of comparative genomics
5. Restriction mapping
6. Applications of PCR

Section B

Answer any **THREE** questions from the following

3 × 10 = 30

7. Explain the procedure of southern blotting.
8. Write a brief note on Plasmid vectors.
9. Give a brief account of Nucleic acid hybridization.
10. Explain how cellular proteins are isolated?
11. Write on comparative genomics and its applications

Section C

Answer any **TWO** questions from the following

2 × 15 = 30

12. Give a detailed account of structure and uses of YAC vector.
13. Name and explain in brief, different gene probes and their applications.
14. Give a general account of DNA sequencing and its methods.
15. Explain the principle and functioning of Microarrays.

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BT 3.1 FOOD & ENVIRONMENTAL BIOTECHNOLOGY**

Time: 3 Hours

Max. Marks: 80

Instruction: Answer all the sections.

Section A

Answer any **FOUR** questions from the following **4 × 5 = 20**

1. Vermiculture
2. Pesticides
3. Bacterial starter cultures
4. Detection of GM foods
5. Rice vine
6. Fermented fish

Section B

Answer any **THREE** questions from the following **3 × 10 = 30**

7. Explain *in-situ* and *ex-situ* bioremediation
8. Write a note on food preservation
9. Explain the relevance of GMO to the environment
10. Write a note on single cell proteins
11. Explain manipulation of fruit ripening process

Section C

Answer any **TWO** questions from the following **2 × 15 = 30**

12. Write in detail about the milk based products
13. Enlist and elaborate on the types of solid waste managements
14. Describe in detail about the production of oil and fuels from wood waste
15. Give a detailed account on applications of genetics in food industries

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BT 3.4: HORMONES AND CELL SIGNALLING

Time: 3 Hours

Max. Marks: 80

Instruction: Answer all the sections.

Section A

Answer any **FOUR** questions from the following **4 × 5 = 20**

1. Jesmonates
2. Epinephrine
3. Estrogen
4. Moulting hormone
5. Polyamines
6. Test tube baby

Section B

Answer any **THREE** questions from the following **3 × 10 = 30**

7. Write a brief note on Diabetes mellitus
8. Explain the mechanism of cell surface receptors
9. Explain the use of pheromones in pest management
10. Briefly explain Gibberellins as plant hormones
11. Write the mechanism of hormone-receptor binding and interaction with DNA.

Section C

Answer any **TWO** questions from the following **2 × 15 = 30**

12. Describe hormones secreted by pituitary gland and their functions.
13. Explain the role of r-DNA in medicine with an example.
14. Explain the role of hormones in contraception and treatment of infertility.
15. Give an account of Abscisic acid and its physiological role.
