

Exam Code: 107404
(30)

Paper Code: 4192

Programme: Bachelor of Science (Bio-Technology)
Semester-IV

Course Title: Industrial Biotechnology-I

Course Code: BBTM-4061

Time Allowed: 3 Hours

Max Marks: 30

Note: Candidates are required to attempt five questions, selecting one question from each section. The fifth question may be attempted from any section. Each question carries equal 6 marks.

Section-A

1. What are the different methods of food processing in food industries? (6)
2. What are the basic concept of agriculture and food processing as industry. How they are related to each other. Illustrate with an example (6)

Section-B

3. Elaborate the followings:
 - a. Importance and salient features of microbes used in various industries. (3)

- b. Isolation of antibiotic producing microbes utilized as IIMs (3)
4. Define IIMs. Illustrates primary IIMs screening methods with examples. Also, compare it with secondary methods. (6)

Section-C

5. What is meant by strain improvement of industrial important microbes? Discuss its strategies with examples. (6)
6. Discuss followings with examples:
- a. Isolation of induce mutants. (3)
 - b. Inoculum development in case of IIMs. (3)

Section-D

7. a. Discuss the production of important primary and secondary metabolites by giving suitable examples of each. (2)
- b. Describe the production technology of cheese production. (4)
8. What are the major steps involved in industrial bread production? (6)

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Exam Code: 107404
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Paper Code: 4193

Programme: Bachelor of Science (Bio-Technology)
Semester-IV

Course Title: Immunology-II

Course Code: BBTM-4062

Time Allowed: 3 Hours

Max Marks: 30

Note Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Section-A

1. What are Whole organism vaccine? Give examples. Write advantages and disadvantages? (6)
2. What are the different T-cell subsets and surface markers? Explain in detail? (6)

Section-B

3. How extracellular bacteria are killed by immune response? Explain in detail? (6)
4. How ELISA can be used qualitatively and quantitatively for the detection of both antigen and antibody (6)

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Section-C

- 5. What are Monoclonal antibodies? How Monoclonal antibodies can be produced? Write its applications also? (6)
- 6. What are Viral vector vaccine? Explain. Write its three advantages and disadvantages? (6)

Section-D

- 7. Write down different Immuno-electrophoretic procedures and their significance? (6)
- 8. Define immune invasion. What are different immune invasion methods used by viruses for infection. (6)

Section-A

- 1. What are Whole organism vaccines? Give examples. Write advantages and disadvantages? (6)
- 2. What are the different T-cell subsets and surface markers? Explain in detail? (6)

Section-B

- 3. How extracellular bacteria are killed by immune responses? Explain in detail? (6)
- 4. How ELISA can be used qualitatively and quantitatively for the detection of both antigen and antibody? (6)

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Paper Code: 4194

Programme: Bachelor of Science (Bio-Technology)
Semester-IV

Course Title: Biochemistry-IV

Course Code: BBTM-4083

Time Allowed: 3 Hours

Max Marks: 30

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries equal marks.

Section- A

1. Describe
 - a) Biosynthesis of threonine from aspartic acid. 3
 - b) Biosynthesis of Valine from pyruvic acid. 3
2. Explain feedback regulation in the biosynthesis of aromatic amino acids. 6

Section- B

3. Discuss
 - a) Aspartate transamination reaction. 3
 - b) Glutamate deamination reaction. 3
4. Give detail account of urea cycle. 6

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- 5. Describe
 - a) Structure of purine bases. 3
 - b) Nucleotides of biological importance. 3
- 6. Explain de novo synthesis of Pyrimidines. 6

Section- D

- 7. Discuss
 - a) Pyrimidine salvage and its regulation. 3
 - b) Reaction and regulation of HGPRTase enzyme. 3
- 8. Explain the catabolism of Purines. 6

Section- A

- 1. Describe
 - a) Biosynthesis of threonine from aspartic acid. 3
 - b) Biosynthesis of Valine from pyruvic acid. 3
- 2. Explain feedback regulation in the biosynthesis of aromatic amino acids. 6

Section- B

- 3. Discuss
 - a) Aspartate transamination reaction. 3
 - b) Glutamate decarboxylation reaction. 3
- 4. Give detail account of urea cycle. 6

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Paper Code: 4195

Programme: Bachelor of Science (Bio-Technology)

Semester: IV

Course Title: Skill Development in Biotechnology

Course Code: BBTM-4064

Time Allowed: 3 Hours

Max Marks: 30

Note: Candidates are required to attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 6 marks.

Section-A

1. What are Nutraceuticals? Explain the potential role of probiotics and common sources of probiotics in food.
2. What are Natural food coloring agents? Explain giving suitable examples.

Section-B

3. Discuss the major principles of HACCP plan in detail.
4. How the quality of following products is assured:
 - i. Milk
 - ii. Butter
 - iii. Jam

Section-C

5. Enlist energy requirements in different age groups and special conditions. Explain them in detail.
6. What is Protein Energy Malnutrition? Enlist the disorders related to malnutrition in detail.

Section-D

7. Write a detailed note on Selective and differential media. Explain their role in the identification of specific organism.
8. How do microbes contribute to food spoilage? Enlist the health risks associated with consuming food affected by microbial spoilage?

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Exam Code: 107404
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Paper Code: 4196

Programme: Bachelor of Science (Bio-Technology)
Semester-IV

Course Title: Fundamentals of Bioinformatics

Course Code: BBTM-4065

Time Allowed: 3 Hours

Max Marks: 30

Note: Candidates are required to attempt five questions selecting one question from each section. The fifth question may be attempted from any section. Each question carries 6 marks.

Section-A

1. Write a short note on:
 - i. Input devices 3
 - ii. Computer software and hardware 3
2. Discuss different visual output devices. Also, discuss voice response units used for computers. 6

Section-B

3. Discuss Needleman -Wunsch, and Smith-Waterman algorithms for progressive sequence alignment. 6

4. Briefly illustrate the followings:
- i. Bioinformatics and its application 3
 - ii. Significance of sequence alignment 3

Section-C

5. Define BLAST. Explain its types 6
6. Explain the following:
- (i) Differentiate between pair wise and multiple sequence alignment 3
 - (ii) PAM Matrix 3

Section-D

7. Write a short note on followings:
- i. EMBL-EBI 3
 - ii. NCBI 3
8. What are sequence databases? Discuss and classify with suitable examples. 6

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**Programme: Bachelor of Science (Bio-Technology)
Semester-IV**

Course Title: Zoology-II

Course Code: BBTM-4486

Time Allowed: 3 Hours

Max Marks: 30

Note: Attempt five questions in all, selecting at least one question from each section (A to D) Fifth question can be attempted from any section. Draw diagrams wherever necessary.

Section A

1. Write a note on the following: (2+2+2=6)
 - a) Abiogenesis
 - b) Theory of special creation
 - c) Theory of Extra-terrestrial contact
2. Explain the evolution of Eukaryotic cell (6)

Section B

3. Write a note on Modern theory of evolution (6)
4. Write a note on Geological time scale. (6)

Section C

5. Explain the life cycle, mode of infection and pathogenicity of Giardia diagrammatically. (6)
6. Explain the life history, pathogenicity of Ascaris. How can disease caused by this be treated? (6)

Section D

7. Write a detailed note on the distribution and control of vectors of Malaria and Plague. (6)
8. Discuss in detail the distribution and control of vectors of Filariasis and Typhus. (6)