

Seat No. : _____

AF-122

August-2021

B.Sc., Sem.-VI

311 : Microbiology

(Biotechnology)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :** (1) All questions in **Section – I** carry equal marks.
(2) Attempt any **three** questions in **Section – I**.
(3) **Section – II** is **COMPULSORY**.

Section – I

1. (A) Justify “Biotechnology as a multidisciplinary science”. 7
(B) Write a note on: Future or Scope of Biotechnology. 7
2. (A) Differentiate between Old and New biotechnology. 7
(B) Write a note on: Biotechnology in Gujarat. 7
3. (A) Write the principle and applications of UV visible spectrophotometer. 7
(B) Write a note on: Biosensors. 7
4. (A) Describe the types and working of centrifugation with applications. 7
(B) Explain Agarose gel electrophoresis and its applications. 7
5. (A) Write note on: “Various additives in plant tissue culture media”. 7
(B) Discuss Northern blotting technique with applications. 7
6. (A) Give a brief note on: Primary animal cell culture. 7
(B) Explain : CRISPR CAS 9. 7

- | | | | |
|----|-----|--|---|
| 7. | (A) | Explain the development of genetically modified rice and tomatoes. | 7 |
| | (B) | Define IPR, and explain the types of IPR. | 7 |
| 8. | (A) | Mention the applications of transgenic animals. | 7 |
| | (B) | Explain the role of Enzyme biotechnology in industries and therapeutics. | 7 |

Section – II

- | | | | |
|----|---|--|---|
| 9. | Answers the following in 1- 2 lines : (any 8) | | 8 |
| | (1) | Which department has been established by Government of Gujarat to encourage science and technology ? | 1 |
| | (2) | List out the major products of Biocon. | 1 |
| | (3) | Who is known as Father of Biotechnology in India ? | 1 |
| | (4) | Mention any two products which are considered as Old Biotechnology. | 1 |
| | (5) | What is the use of differential centrifugation ? | 1 |
| | (6) | Define : Rf value | 1 |
| | (7) | Enlist the component part of electrophoresis apparatus. | 1 |
| | (8) | List the parts of: Biosensor. | 1 |
| | (9) | What is “Trypsinization” ? | 1 |
| | (10) | Why callus needs to be sub-cultured ? | 1 |
| | (11) | What is “Reverse Northern Blot” ? | 1 |
| | (12) | Define : Totipotency | 1 |
| | (13) | What is an edible vaccine ? | 1 |
| | (14) | Why genetically modified tomatoes exhibit delayed ripening ? | 1 |
| | (15) | Define : Trade mark | 1 |
| | (16) | Give the therapeutic use of amylase. | 1 |
-

Seat No. : _____

AF-122

August-2021

B.Sc., Sem.-VI

311 : Microbiology (Geo-Microbiology)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (1) All questions in **Section – I** carry equal marks.
 - (2) Attempt any **three** questions in **Section – I**.
 - (3) **Section – II** is **COMPULSORY**.

Section – I

1. (A) Discuss the distribution of microbes in soil. 7
(B) Describe significance of Geomicrobiology. 7
2. (A) Write a note on: Earth as microbial habitat 7
(B) Discuss microbial population found in fresh water habitat 7
3. (A) Discuss culture independent approaches to study geoactive microbes 7
(B) Discuss role of microbes as catalysts of geochemical processes 7
4. (A) Discuss genetical approaches to study important microorganisms in geomicrobiology 7
(B) Describe geomicrobially active physiological groups of prokaryotes. 7
5. (A) Discuss Direct oxidation of metal sulphides by microbes. 7
(B) Discuss Acid mine drainage. 7
6. (A) Discuss Biobleaching of copper ore. 7
(B) Write a note on: Biobeneficiation. 7

- 7 (A) Write a note on: Methanogenesis. 7
(B) Discuss in brief fossil fuels. 7
8. (A) Describe the role of microbes in peat formation. 7
(B) Explain microbial desulfurization of coal. 7

Section – II

9. Answer in short : (any **eight**) 8
- (1) What is biosphere ?
 - (2) Define soil.
 - (3) What is lithification ?
 - (4) What is humus ?
 - (5) Give full form FISH.
 - (6) Name any two geomicrobially important bacteria.
 - (7) What are photolithotrophs ?
 - (8) Name any one laboratory method used to study geomicrobial processes
 - (9) Name any two metal sulphides of geomicrobial interest
 - (10) Name any two pyrite oxidizing bacteria.
 - (11) What is AMD ?
 - (12) What is bioleaching ?
 - (13) Name any one novel coenzyme present in methanogens
 - (14) What is peat ?
 - (15) Name any two fossil fuels.
 - (16) Name any one type of coal.
-