

121217514022

Code No. 8344/CORE

FACULTY OF SCIENCE
M.Sc. IV-Semester Examination, May/June 2019

Subject : Biochemistry
Paper – I : Bio Statistics and Bio Informatics

Time : 3 Hours

Max. Marks: 80

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

PART – A (8X4=32 Marks)
(Short Answer Type)

1. Population 1
2. Regression 1
3. Quality Control in biochemistry 2
4. Sign test 2
5. FASTA 3
6. HGP 3
7. Protein motifs 4
8. Kenome 4

PART – B (4x12=48 Marks)
(Essay Answer Type)

9. (a) Explain in detail about different types of probability methods.
OR
(b) Discuss the following methods Range, Variance, Standard deviation.
10. (a) What is ANOVA, discuss in detail 1-way ANOVA.
OR
(b) How do you calculate F-Test and T-test?
11. (a) Write an essay on NGS and note down applications.
OR
(b) Discuss in detail about scoring matrices.
12. (a) Discuss in detail about MS-MALDI and LCMS.
OR
(b) What is HUPO, explain its goals and accomplishments.

FACULTY OF SCIENCE
M.Sc. IV-Semester Examination, May/June 2019

Subject : Biochemistry
Paper – II : Cell-Cell Junctions and Signal Transduction

Time : 3 Hours

Max. Marks: 80

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

PART – A (8X4=32 Marks)
(Short Answer Type)

1. Glucose Transporters
2. Fick's Law
3. cMyc
4. Epidermal Growth Factor
5. cM1/c
6. Tumor Suppressors
7. Chemotaxis
8. Stress Signaling in Plants

PART – B (4x12=48 Marks)
(Essay Answer Type)

9. (a) Compare and contrast the structural organization and functions of actin and myosin.
OR
(b) Explain the mechanism of action of Active transport and their types.
10. (a) Schematically describe the Insulin receptor signaling pathway.
OR
(b) Explain the mechanism of stimulatory and inhibitory GPCR signaling pathways.
11. (a) Describe Ras pathway and its implications in development of cancer.
OR
(b) What are PKC's? Describe their functions and classification based on their requirement for secondary messengers.
12. (a) Describe the MAP Kinases majorly involved in yeast signaling pathways.
OR
(b) Briefly describe protein – protein interactions in signaling pathways and two experimental techniques to study protein – protein interactions.

FACULTY OF SCIENCE
M.Sc. IV-Semester Examination, May/June 2019

Subject : Biochemistry
Paper – III : Bacteriology and Virology

Time : 3 Hours

Max. Marks: 80

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

PART – A (8X4=32 Marks)
(Short Answer Type)

1. Moist Heat sterilization
2. Continuous and Synchronous cultures
3. Degradation of lignocellulosic waste
4. Probiotic bacteria
5. Replication of ϕ x 174
6. Phage biodiversity
7. Pathogenicity of HIV
8. Baltimore classification

PART – B (4x12=48 Marks)
(Essay Answer Type)

9. (a) Describe the chemical methods of sterilization. Give examples.
OR
(b) Describe salient features of prokaryotic cell structure and mention the differences between prokaryotes and eukaryotes.
- 10.(a) Describe the etiology, pathogenesis, diagnosis and treatment of tuberculosis.
OR
(b) What are the various aspects of Domestic, municipal and industrial waste disposal?
- 11.(a) How does the life cycle of λ phage switch from lysogenic to lytic mode? What are the events occurring in the process?
OR
(b) Discuss the isolation and purification of bacteriophages. Add a note on plaque assay.
- 12.(a) Describe the life cycle of Adenovirus.
OR
(b) What are the various methods of cultivation and propagation of animal viruses. Add a note on viral assays.

FACULTY OF SCIENCE
M.Sc. IV-Semester Examination, May/June 2019

Subject : Biochemistry
Paper – IV : Biotechnology

Time : 3 Hours

Max. Marks: 80

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

PART – A (8X4=32 Marks)
(Short Answer Type)

1. Human growth hormone
2. Microbial production of interferons
3. Terminator technology.
4. Golden rice.
5. Plasminogen activator.
6. Viral vaccines
7. Tags for protein purification
8. PEGylated interferon

PART – B (4x12=48 Marks)
(Essay Answer Type)

9. (a) How are micro-organisms utilized in biomining and bioleaching? Add a note on superbug.

OR

- (b) Describe the production of various microbial enzymes for industry and their applications.

- 10.(a) What are the usual strategies enforced during genetic engineering to create insect resistant plants?

OR

- (b) How are plants propagated by cell culture? What are the applications of protoplast fusion?

- 11.(a) What are the various methods used in gene therapies for genetic disorders?

OR

- (b) How are antibodies engineered? Add a note on their applications.

- 12.(a) What are the methods and applications of immobilized cells?

OR

- (b) What are the various strategies applied for modifying enzyme production to stabilize, enhance specific activity and turnover of enzymes?
