

**SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)
EXAMINATION, APRIL 2021**

(CBCSS)

General Biotechnology

GBT 2C 04—BIOSTATISTICS AND BIOINFORMATICS

(2019 Admissions)

Time : Two Hours and a Half

Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend all questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any four questions.

Each question carries a weightage of 2.

1. What is Tabulation ?
2. Define arithmetic mean.
3. Give four built in functions of R.
4. How do you insert tables in MS-WORD.
5. Give different domain names used in WWW.
6. What is potential energy functions ?
7. What is a docking score ?

(4 × 2 = 8 weightage)

Section B

Answer any four questions.

Each question carries a weightage of 3.

8. Give difference between bar diagram and histogram.
9. What is pie diagram ?

Turn over

10. What is Median ?
11. What is a flow chart ?
12. Give different data types in BASIC.
13. Write briefly on a literature database.
14. Explain briefly on LIGPLOT program.

(4 × 3 = 12 weightage)

Section C

Answer any two questions.

Each question carries a weightage of 5.

15. Write on different measures of dispersion.
16. Write on correlation and correlation co-efficient ?
17. Give structure of a 'C' program. What are the essential components in it ?
18. Discuss on Phylogenetic analysis.

(2 × 5 = 10 weightage)

**SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)
EXAMINATION, APRIL 2021**

(CBCSS)

General Biotechnology

GBT 2C 03—ENVIRONMENTAL BIOTECHNOLOGY

(2019 Admissions)

Time : Two Hours and a Half

Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend all questions in each section.*
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Section A

Answer any four questions.

Each question carries a weightage of 2.

1. Write about bacteria used for bioleaching.
2. What are the characteristics of wastewater ?
3. Biotic community concept.
4. Write any two applications of biofuels.
5. Define PHB.
6. Define Ecosystem.
7. Define Phytoremediation.

(4 × 2 = 8 weightage)

Section B

Answer any four questions.

Each question carries a weightage of 3.

8. What is meant by acid rain ? Explain the causes and effects of acid rain.
9. Write a brief note on surfactants.

Turn over

10. Briefly discuss the role of an individual in prevention of pollution.
11. Working of trickling filter.
12. Write short note on greenhouse effect.
13. Briefly explain methane production.
14. Write on any three applications of biosensors.

(4 × 3 = 12 weightage)

Section C

Answer any **two** questions.

Each question carries a weightage of 5.

15. Describe various strategies for management of solid waste.
16. Write brief note on benefits and limitations of bio fertilizers.
17. Emphasise the role of degradative plastics.
18. Give short note on biosensors and their environmental application.

(2 × 5 = 10 weightage)

**SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)
EXAMINATION, APRIL 2021**

(CBCSS)

General Biotechnology

GBT 2C 02—MOLECULAR BIOLOGY

(2019 Admissions)

Time : Two Hours and a Half

Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend all questions in each section.*
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3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any four questions.

Each question carries a weightage of 2.

1. Write a note on terminator sequences.
2. Insertion elements.
3. Translocation.
4. Gene mutation.
5. What are Oncogenes ?
6. What is Spliceosome ?
7. Explain Ac-Ds system.

(4 × 2 = 8 weightage)

Section B

Answer any four questions.

Each question carries a weightage of 3.

8. Write a note on TAFs.
9. Explain anti termination.

Turn over

10. What is the role of tumour suppressor genes in prevention of cancer.
11. Explain the structure of Lac operon.
12. What is an origin of replication ?
13. What is non-homologous recombination.
14. Describe the structure of t-RNA.

(4 × 3 = 12 weightage)

Section C

Answer any **two** questions.

Each question carries a weightage of 5.

15. Explain the role of promoters and other cis-acting elements in transcription of eukaryotes.
16. What are the gene transfer mechanisms in Bacteria ? Discuss in detail.
17. Briefly explain the structural and numerical aberrations in chromosomes ?
18. Give an account of the DNA replication machinery in prokaryotes and eukaryotes.

(2 × 5 = 10 weightage)

**SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)
EXAMINATION, APRIL 2021**

(CBCSS)

General Biotechnology

GBT 2C 01—METABOLISM AND BASIC ENZYMOLOGY

(2019 Admissions)

Time : Two Hours and a Half

Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend **all** questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
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Section A

*Answer any **four** questions.*

Each question carries 2 weightage.

1. What is dissociation constant ?
2. What is meant by ATP ?
3. What is meant by glycosidic linkage ?
4. What is the function of methionine ?
5. What is Sphingolipid ?
6. What is active site ?
7. Define Km.

(4 × 2 = 8 weightage)

Section B

*Answer any **four** questions.*

Each question carries 3 weightage.

8. Explain the free energy concept.
9. Discuss the regulation of gluconeogenesis.

Turn over

10. Draw and describe the structure of glycolipids.
11. Give importance of amino acids.
12. Write note on nucleotide and nucleic acids.
13. What are the units to measure enzyme activity?
14. What are multienzyme systems or complex?

(4 × 3 = 12 weightage)

Section C

Answer any two questions.

Each question carries 5 weightage.

15. Outline the steps involved in pentose phosphate pathway.
16. Describe about the electron transport system in Mitochondria.
17. Describe fatty acid biosynthesis.
18. Describe Koskland's induced fit model.

(2 × 5 = 10 weightage)

**SECOND SEMESTER M.Sc. DEGREE (SUPPLEMENTARY) EXAMINATION
APRIL 2021**

(CUCSS)

General Biotechnology

GB 2C 4—BIOSTATISTICS AND BIOINFORMATICS

(2010 Admissions)

Time : Three Hours

Maximum : 36 Weightage

Section A (Very Short Answer Type)

Answer all questions.

Each with weightage 1.

1. What is local alignment ?
2. Differentiate between primary and secondary databases.
3. What are the features of a phylogenetic tree ?
4. How protein secondary structure is predicted ?
5. What are the characteristics of GenBank ?
6. What do you mean by sampling ?
7. What are quartiles ?
8. What are the advantages of graphic presentation of data ?
9. What is a simple random sample ?
10. Explain normal distribution.

(10 × 1 = 10 weightage)

Section B (Paragraph Type/Short Answer Type)

Answer any seven questions.

Each with weightage 2.

11. Write briefly on similarity and distance matrix.
12. Write notes on PDB.

Turn over

13. Explain homologs-paralogs and orthologs.
14. Explain the features of atleast two tools used for phylogenetic analysis and tree construction.
15. Differentiate skewness and kurtosis.
16. What are the various ways of studying correlation ? Explain about each.
17. Explain various methods of graphical presentation of frequency distribution.
18. Briefly describe computer oriented statistical techniques.
19. Give an account of one-way classified ANOVA procedure.
20. Write an account of sampling technique.

(7 × 2 = 14 weightage)

Section C (Essay Type)

Answer any two questions.

Each with weightage 6.

21. Explain BLAST. What are the major features.
22. Give an account of measures of central tendencies.
23. What is regression ? Explain linear regression analysis.

(2 × 6 = 12 weightage)