

**FIRST SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)  
EXAMINATION, NOVEMBER 2021**

(CBCSS)

General Biotechnology

GBT IC 03—MICROBIOLOGY

(2019 Admission onwards)

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. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *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. Confocal microscope.
2. Dermatomycosis.
3. Three domain classification.
4. Plaque assay.
5. Selective differential media.
6. Prophage and Temperate phage.
7. Methanogenesis.

(4 × 2 = 8 weightage)

**Turn over**

**Section B**

*Answer any four questions.*

*Each question carries a weightage of 3.*

8. Nutritional classification of bacteria.
9. Viral enumeration methods.
10. Pathogenesis and prophylaxis of Tuberculosis.
11. Brief account on microbial drug resistance.
12. Bacteriological examination of drinking water.
13. Describe EMP pathway.
14. Role of microbes in Nitrogen cycle.

(4 × 3 = 12 weightage)

**Section C**

*Answer any two questions.*

*Each question carries a weightage of 5.*

15. Write an essay on different human and microbial interactions and its importance.
16. Discuss principles of bacterial classification and different approaches in bacterial taxonomy.
17. Write an essay on different methods for cultivation, detection and enumeration of viruses.
18. Describe chemical and biological sterilization methods.

(2 × 5 = 10 weightage)

**FIRST SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)  
EXAMINATION, NOVEMBER 2021**

(CBCSS)

General Biotechnology

GBT 1C 02—BIOMOLECULES

(2019 Admission onwards)

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. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *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. Explain the major torsion angles in protein.
2. What is isoelectric focusing ?
3. Define 'standard free energy'.
4. Define the term 'molar extinction coefficient'.
5. What is the significance of Henderson-Hassel Balch equation ?
6. Distinguish between epimers and anomers.
7. What are alkaloids ?

(4 × 2 = 8 weightage)

**Turn over**

**Section B**

*Answer any four questions.*

*Each question carries a weightage of 3.*

8. Describe any three chromatographic methods that can be employed for protein purification.
9. Point out the major differences between the structures of *t*-RNA and mRNA.
10. Explain the role of centrifugation as an isolation technique.
11. Explain the principle of NMR spectroscopy.
12. Write a note on secondary structure of protein.
13. What are the different steps in the compositional analysis of carbohydrates ?
14. What are steroids ? Explain their role in human physiology.

(4 × 3 = 12 weightage)

**Section C**

*Answer any two questions.*

*Each question carries a weightage of 5.*

15. Discuss the role of vitamins in our body.
16. Give an idea about the different amino acids found in proteins. What are non-protein amino acids ?
17. Detail the principle and instrumentation of spectrophotometer. What is its various application ?
18. Write an essay on mass spectrometry.

(2 × 5 = 10 weightage)

**FIRST SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)  
EXAMINATION NOVEMBER 2021**

(CBCSS)

General Biotechnology  
GBTIC01—CELL BIOLOGY  
(2019 Admission onwards)

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. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *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. Diversity of cell size and shape.
2. Virion and Prion.
3. Protein folding.
4. Fluorescent microscope.
5. Chloroplast genome.
6. Endosome.
7. Calmodulin.

(4 × 2 = 8 weightage)

**Turn over**

**Section-B**

*Answer any four questions.*

*Each question carries a weightage of 3.*

8. Ribosome Biogenesis.
9. Cytoplasmic inheritance.
10. Cell cycle inhibitors cause cancer.
11. Actin and myosin.
12. Structure and function of Golgi complex.
13. Mechanism of protein sorting in the cell.
14. What is endocytosis ? Explain two mechanism of endocytosis.

(4 × 3 = 12 weightage)

**Section C**

*Answer any two questions.*

*Each question carries a weightage of 5.*

15. Describe different types of signaling molecules and explain the four mechanisms by which these molecule can mediate signals.
16. Explain structure and organization of prokaryotic cell.
17. Write an essay on Membrane structure and functions.
18. Explain the Co and post translational modifications in eukaryotic proteins.

(2 × 5 = 10 weightage)