



K21U 1804

Reg. No. :

Name :

III Semester B.Sc. Degree (CBCSS – O.B.E. – Regular/Supplementary/
Improvement) Examination, November 2021

(2019 and 2020 Admissions)

COMPLEMENTARY ELECTIVE COURSE IN BIOCHEMISTRY

3C03BCH : Biochemistry – III

Time : 3 Hours

Max. Marks : 32

SECTION – A

(Very Short Answer)

Answer **all** questions. **Each** question carries **1** mark.

(5×1=5)

1. Define free energy.
2. Write the expansion for PRPP.
3. Write the site of citric acid cycle and glycolysis within a eukaryotic cell.
4. Name the amino acids which are not substrates of gluconeogenesis.
5. Name any two types of reactions involved in amino acid metabolism.

SECTION – B

(Short Answer)

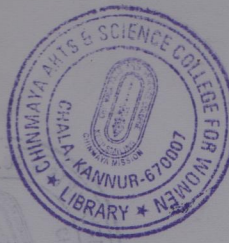
Answer **any 4** questions. **Each** question carries **2** marks.

(4×2=8)

6. Illustrate Cori cycle.
7. Write a short note on transamination reaction of amino acids.
8. Differentiate the term glycogenesis and glycolysis.
9. What is meant by Salvage pathway ?
10. Name the rate limiting enzyme in fatty acid biosynthesis and write the reaction catalyzed.
11. How is pyruvate converted to acetyl CoA ?

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SECTION – C
(Short Essay)

Answer **any 3** questions. **Each** question carries **3** marks.

(3×3=9)

12. How is glycolytic cycle regulated ?
13. Briefly explain oxidative phosphorylation.
14. Write a short essay on high energy compounds.
15. Outline the reactions involved in gluconeogenesis.
16. Write down the different fates of pyruvate.

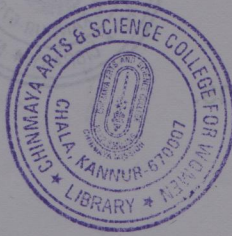
SECTION – D

(Essay)

Answer **any 2** questions. **Each** question carries **5** marks.

(2×5=10)

17. Give a detailed account of the Urea cycle.
18. Explain in detail beta oxidation of fatty acids.
19. Discuss about the biosynthesis and breakdown of glycogen.
20. Give an account of the metabolism of tyrosine.



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III Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/Improvement)
Examination, November 2021
(2019 and 2020 Admissions)

GENERAL AWARENESS COURSE IN BIOTECHNOLOGY
3A01BTC : Biophysics

Time : 3 Hours

Max. Marks : 40

PART – A

Answer **each** of the following in **2** or **3** sentences. **Each** question carries **1** mark.

(6×1=6)

1. Define tyndall effect.
2. What is Entropy ?
3. Define rate of a chemical reaction.
4. What is ZDNA ?
5. What is hypotonic solution ?
6. Define chemisorption.

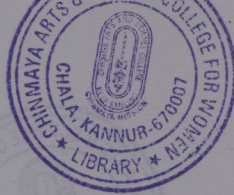
PART – B

Write notes on **any six** of the following. **Each** question carries **2** marks. **(6×2=12)**

7. State second law of thermodynamics.
8. Define membrane potential.
9. Describe open and closed system.
10. What is Reverse Hoogsteen base pairing ?

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11. What is tRNA ? Give its functions.

12. What are surfactants ?

13. What is passive transport ?

14. Define molecularity of a chemical reaction.

PART – C

Write short essay on **any four** of the following. **Each** question carries **3** marks. (4×3=12)

15. Describe surface tension and its biological importance.

16. Explain quaternary structure of protein with an example.

17. Explain applications of colloids.

18. What is DNA polymorphism ? Explain.

19. Explain first law of thermodynamics.

20. Describe on classification of aminoacids.

PART – D

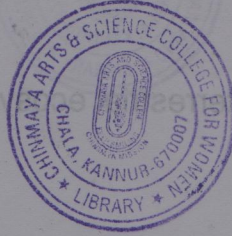
Write essay on **any two** of the following. **Each** question carries **5** marks. (2×5=10)

21. Explain the structure of DNA.

22. Explain about membrane transport.

23. Describe on DNA-protein interaction.

24. Compare diffusion and osmosis.



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**III Semester B.Sc. Degree (C.B.C.S.S. – O.B.E. – Regular/Supplementary/
Improvement) Examination, November 2021
(2019 and 2020 Admissions)
General Awareness Course in Biotechnology
3A02BTC – BASIC CONCEPTS OF ECOLOGY**

Time : 3 Hours

Max. Marks : 40

PART – A

Write short notes on **each** of the following in **2 or 3** sentences. **Each** question carries **1** mark. **(6×1=6)**

1. Autecology
2. Climax community
3. Ecological niche
4. Food web
5. Sulphur cycle
6. Ecotone

PART – B

Write notes on **any six** of the following. **Each** question carries **2** marks. **(6×2=12)**

7. Differentiate between community and biome.
8. What is nutrient budget ?
9. Ecological succession.
10. Energy flow in an ecosystem.
11. R and K selection.

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12. What are the major types of terrestrial ecosystem ?

13. Biosphere reserves in India.

14. Nitrogen cycle with diagram.

PART - C

Write short essay on **any four** of the following. **Each** question carries 3 marks.

(4×3=12)

15. Differentiate between biotic and abiotic components.

16. What are ecological pyramid ? Mention its types.

17. What are the major threats to biodiversity ?

18. Write about the controversies and problems associated with project tiger programme.

19. Explain any five population characteristics.

20. Explain types of species interaction.

PART - D

Write essay on **any two** of the following. **Each** question carries 5 marks. (2×5=10)

21. Give a detailed account on principles of conservation biology and its management.

22. Explain in detail the structure and functions of ecosystem.

23. Discuss about the scope and significance of ecology.

24. What is succession ? Explain types and mechanism of succession in detail.



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**III Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/
Improvement) Examination, November 2021
(2019 and 2020 Admissions)
CORE COURSE IN BIOTECHNOLOGY
3B03BTC : Immunology**

Time : 3 Hours

Max. Marks : 40

SECTION – A

Write short notes on **each** of the following in **2 or 3** sentences. **Each** question carries **1** mark. **(6×1=6)**

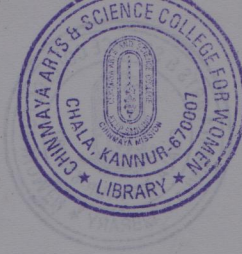
1. Effector response.
2. Stem cell.
3. Antigen Presenting Cells.
4. Grave's disease.
5. MHC.
6. Clonal Deletion.

SECTION – B

Write notes on **any six** of the following. **Each** question carries **2** marks. **(6×2=12)**

7. Hybridoma.
8. Macrophage mediated tumor destruction.
9. TNF.
10. Lectin pathway.

P.T.O.



11. Hematopoiesis.
12. T Cell Receptor Complex.
13. Antibody affinity.
14. Junctional Flexibility.

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SECTION – C

Write short essays on **any four** of the following. **Each** question carries **3** marks.

(4×3=12)

15. Briefly describe V, D, J gene arrangement.
16. Explain the structure of antibody.
17. Explain the role of haptens in diagnosis.
18. Describe endogenous antigens.
19. Explain MALT.
20. Describe primary and secondary immune response.

SECTION – D

Write essays on **any two** of the following. **Each** question carries **5** marks. (2×5=10)

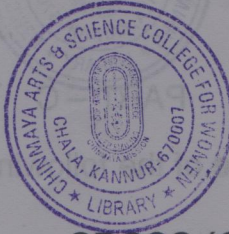
21. Give a detailed account on compliment pathways with neat sketch.
22. Explain in detail about monoclonal antibodies and its application.
23. Explain hematopoiesis and homeostatic mechanism.
24. Explain secondary lymphoid organs.



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III Semester B.Sc. Degree CBCSS (OBE) Reg./Sup./Imp.
Examination, November 2021
(2019 – 2020 Admission)

Complementary Elective Course in Microbiology for Biochemistry/
Biotechnology Core

3C03MCB : APPLIED MICROBIOLOGY – I

Time : 3 Hours

Max. Marks : 32

PART – A

Write about **each** of the following in **2** or **3** sentences. **Each** question carries **1** mark. (1×5=5)

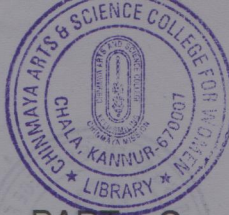
1. Freeze drying.
2. Polio myelitis.
3. Semi-Perishable foods.
4. Rhizopus.
5. Food borne virus causing liver infections.

PART – B

Write notes on or discuss **any four** of the following. **Each** question carries **2** marks. (4×2=8)

6. Water activity.
7. Microorganisms involved in Yoghurt fermentation.
8. Rota virus infection from food.
9. Contamination of foods from plants, fruits and animals.
10. Contamination of foods from sewage.

P.T.O.



PART - C

Write notes on or discuss **any three** of the following. **Each** question carries **3** marks. **(3x3=9)**

- 11. Penicillium.
- 12. Prevention of outbreaks of food infections.
- 13. Microbial production of Vinegar.
- 14. Lactobacillus.
- 15. Differences between food infections and intoxications.

PART - D

Write notes on or discuss **any two** of the following. **Each** question carries **5** marks. **(2x5=10)**

- 16. Wine and beer fermentation.
- 17. Water borne diseases.
- 18. Food preservation methods.
- 19. Microbial spoilage of food.

PART - B

Write notes on or discuss **any four** of the following. **Each** question carries **5** marks. **(4x5=20)**

- 1. Freeze drying.
- 2. Poincarré's method.
- 3. Semi-permeable foods.
- 4. Rhizopus.
- 5. Food borne virus causing liver infections.
- 6. Water activity.
- 7. Microorganisms involved in Yogurt fermentation.
- 8. Rotavirus infection from food.
- 9. Contamination of foods from plants, fruits and animals.
- 10. Contamination of foods from sewage.