



K19U 2451

Reg. No. :

Name :

III Semester B.Sc. Degree (CBCSS-Reg./Sup./Imp.)

Examination, November - 2019

(2014 Admn. Onwards)

COMPLEMENTARY COURSE IN BIOCHEMISTRY

3C03 BCH : BIOCHEMISTRY-III

Time : 3 Hours

Max. Marks : 32

SECTION-A

Answer **All 5** questions. Each question carries **1** mark. **(5×1=5)**

1. What is meant by entropy?
2. What is meant by equilibrium constant of a reaction?
3. Identify the first irreversible step of glycolysis.
4. Give the reaction catalyzed by 'galactokinase'.
5. List the four nucleotides found in our genetic material.

SECTION-B

(Short answers)

Answer any **4** questions out of **6**. Each question carries **2** marks. **(4×2=8)**

6. List any two phosphorylated compounds and their functions.
7. Explain 'Standard free energy change'.
8. Give a brief account on entry of fructose into glycolysis.
9. What is gluconeogenesis?
10. What is the reaction catalyzed by glutamate dehydrogenase? How is it important?
11. Identify the hormones regulating glycogen metabolism.

P.T.O.

K19U 2451



SECTION-C

(Short essay)

Answer any **3** questions out of **5**. Each question carries **3** marks. **(3×3=9)**

12. How does ATP aid in transport of molecules across a concentration gradient? Explain.
13. How does glycogen serve as energy reserve during starvation? Explain.
14. Why are transamination reactions significant in biological nitrogen management?
15. Explain the importance of urea cycle and its regulation.
16. Give a short essay on the breakdown of purines.

SECTION-D

(Long Essays)

Answer any **2** questions out of **4**. Each question carries **5** marks. **(2×5=10)**

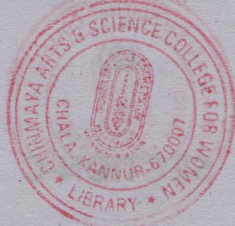
17. Explain the steps and key regulators of glycolysis.
18. Discuss the components and energetic of citric acid cycle.
19. Give a detailed overview on biosynthesis of non-essential amino acids.
20. Why salvage pathway is considered a recycle pathway for nucleic acids? Explain in detail.

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K19U 2454

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GENERAL COURSE IN BIOTECHNOLOGY

3A 11 BTC : METHODOLOGY AND PERSPECTIVE OF SCIENCE

Time : 3 Hours

Max. Marks : 40

SECTION-A

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

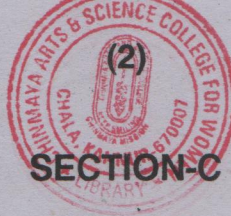
1. Ad-hoc hypothesis
2. Legal aspects of plagiarism
3. AGE
4. False negative finding.
5. Give a comparative description on type I and type II errors.
6. SDS PAGE

SECTION-B

Write short notes on any 3 questions. Each question carries 2 marks. (3×2=6)

7. Principles of pH meter.
8. Scientific temper.
9. MSDS
10. HEPA filter

P.T.O.

**SECTION-C**

Write short notes on any **Three**. Each question carries **4** marks. **(3×4=12)**

11. Role of statistics in data interpretation.
12. Double blind study
13. Real time PCR.
14. Depositories of scientific information.
15. Give an account on significance of virtual testing.

SECTION-D

Write an essay on any **Two** questions. Each question carries **8** marks.
(2×8=16)

16. Discuss in detail about major doctrines of epistemology.
 17. Give a detailed account on molecular identification of microbes.
 18. Describe in detail about ethics in scientific research.
 19. Explain the various bias in research.
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GENERAL COURSE IN BIOTECHNOLOGY

3A 12 BTC : INFORMATICS AND INTRODUCTION

TO BIOINFORMATICS

Time : 3 Hours

Max. Marks : 40

SECTION-A

Write about each of the following in 2 or 3 sentence. Each question carries 1 mark. **(6×1=6)**

1. What is microarray?
2. What is FASTA?
3. What is neural networks?
4. What is VRL?
5. What is phylogeny?
6. What is GenBank?

SECTION-B

Write short notes on any **Three** of the following. Each question carries 2 marks. **(3×2=6)**

7. What is Clustal W?
8. What is PDB?
9. What is BRNET?
10. What is NHGRI?

P.T.O.



K19U 2456



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CORE COURSE IN BIOTECHNOLOGY

3B03 BTC : IMMUNOLOGY

Time : 3 Hours

Max. Marks : 40

SECTION-A

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

1. HSC
2. C reactive protein
3. Epitopes
4. Immunogens
5. HAT selection
6. Hinge region

SECTION-B

Write short notes on any 3 questions. Each question carries 2 marks. (3×2=6)

7. Structure and formation of secretory Ig A
8. Abzymes
9. Role of incomplete antibodies in agglutination reaction
10. Lectin pathway

P.T.O.

**SECTION-C**

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

11. Explain in detail about memory B cells
12. Give a detail account on cytokines.
13. Explain the thymic selection process.
14. Give an account on apoptosis and necrosis with diagram.
15. Explain the pathways of antigen presentation

SECTION-D

Write an essay on any **2** questions. Each question carries **8** marks. **(2×8=16)**

16. Explain DTH in detail with treatment.
 17. Give a detail account on ELISA and its application
 18. Explain the structure and function of secondary lymphoid organs.
 19. Explain systemic autoimmune diseases.
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CORE COURSE IN BIOTECHNOLOGY

3B 04 BTC : PLANT PHYSIOLOGY

Time : 3 Hours

Max. Marks : 40

SECTION-A

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

1. Root pressure theory
2. Phototropism
3. Applications of vernalization
4. Essential and non-essential elements
5. Capillary water
6. Mass flow hypothesis

SECTION-B

Write short notes on any **3** of the following. Each question carries **2** marks. **(3×2=6)**

7. Transpiration pull theory
8. Apoplast and symplast pathway
9. Cryptochromes
10. Role of cytokinin

P.T.O.

**SECTION-C**

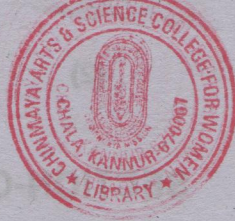
Write short essay on any **3** of the following. Each question carries **4** marks.
(3×4=12)

11. Structure of phytochromes
12. Methods of plant growth measurements.
13. Methods of breaking seed dormancy.
14. Temperature stress
15. Tropic movements of plants

SECTION-D

Write essay on any **2** of the following. Each question carries **8** marks.**(2×8=16)**

16. Explain the process of seed germination
17. Give a detailed account on theories on mechanism of opening and closing of stomata.
18. Describe the physiological role of gibberlins and abscissic acid.
19. Explain the significance of seed dormancy and also the causes and mechanisms involved in breaking seed dormancy.



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COMPLEMENTARY COURSE IN MICROBIOLOGY

3C03 MCB: APPLIED MICROBIOLOGY-1

Time : 3 Hours

SECTION-A

Max. Marks : 32

(Answer **All** the **Five** questions in a single word)

(5×1=5)

1. Name the enzyme used in cheese production.
2. Rice water stool is the major symptom of_____.
3. The temperature used for Flash method of milk pasteurization is_____.
4. _____ is a flower used in beer production for flavour development.
5. Sugar and salt help to preserve food by reducing the_____.

SECTION-B

Answer briefly on any **Four** of the following. Comment on the following:

(4×2=8)

6. Case hardening.
7. GRAS.
8. Freeze drying.
9. Must.
10. Leavening.
11. False yeasts.

P.T.O.

K19U 2483



SECTION-C

(Write short notes on any **Three** of the following)

(3×3=9)

- 12. Pasteurization.
- 13. Yoghurt.
- 14. Sulfuring.
- 15. Listeriosis.
- 16. Bacteria important in food microbiology.

SECTION-D

Answer any **Two** of the following in detail.

(2×5=10)

- 17. Brewing.
- 18. Preservation using high temperature.
- 19. Any two food and water borne viral diseases.
- 20. Factors affecting the growth of microbes in food.