

F-7410

Sub. Code

7MBC1C1

M.Sc. DEGREE EXAMINATION, APRIL 2022

First Semester

Biochemistry

CHEMISTRY OF BIOMOLECULES

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Define colligative property
2. What is buffering range?
3. What are the different anomeric forms of sugars?
4. What is stereoisomerism?
5. What is isoelectric point?
6. Define denaturation
7. What is Reichert-Meissel number?
8. Define rancidity of fats.
9. What is cruciform DNA?
10. Define Chagaff's rule.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the significance of buffers.

Or

- (b) Differentiate between hyper, hypo and isotonic solutions.

12. (a) Discuss on bacterial cell wall polysaccharides.

Or

- (b) Write a detailed note on the structure and functions of oligosaccharides.

13. (a) Discuss on the applications of Ramachandran Plot.

Or

- (b) What are the functions of glycoproteins lipoproteins?

14. (a) Differentiate between saturated and unsaturated fats.

Or

- (b) Elaborate on the functions of glycerophospholipids.

15. (a) Discuss on the classification of RNA.

Or

- (b) Write a detailed note on the properties of DNA.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write in detail on the quantities of thermodynamics and the importance of free energy change.
 17. Write a detailed note on any four structural polysaccharides.
 18. Give a detailed note on the structure of protein.
 19. What are sphingolipids? Write in detail on its types and significance.
 20. Write a detailed note on the structure of DNA.
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F-7411

Sub. Code

7MBC1C2

M.Sc. DEGREE EXAMINATION, APRIL 2022

First Semester

Biochemistry

ANALYTICAL BIOCHEMISTRY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is the use of cryovial?
2. Special feature of Fixed Angle Rotor.
3. What is Ninhydrin Reagent?
4. Uses of Nitrocellulose Membrane.
5. Any two applications of NMR.
6. What is the function of UV Detector?
7. What is colorimetry?
8. What is scintillation counter?
9. Give examples of any two fluorescence dyes.
10. Applications of MALDI – TOF- TOF.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the cell counting methods.

Or

- (b) Explain the application of High speed ultra centrifuge.

12. (a) Explain the principles of HPTLC.

Or

- (b) Give a detailed note on the factors affecting electrophoresis.

13. (a) Discuss in detail on ESR.

Or

- (b) Give on a account on the principle and applications of NMR.

14. (a) Write a short notes on the Radio active tracer.

Or

- (b) Explain the types of Radio isotopes.

15. (a) Explain the principles and applications of X-ray fluorescence.

Or

- (b) Explain about Sanger DNA sequencing method.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the different types of Rotors.

17. Discuss on GCMS and its applications.

18. Give a detailed note on the different types of spectroscopic methods.
 19. Elaborate on the principle and applications of RIA.
 20. Give a detailed note on the FPIA.
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F-7416

Sub. Code

7MBC2C3

M.Sc. DEGREE EXAMINATION, APRIL 2022

Second Semester

Biochemistry

BIOTECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Differentiate between a blunt and a cohesive end.
2. Define a plasmid.
3. What is RNA blot?
4. What are the advantages and disadvantages of using pre-cast gels?
5. What are the major types of organs and cells which are affected during malaria infection?
6. How is BMI related with obesity?
7. What are interferons?
8. What are hybridoma cells?
9. What is batch culture?
10. What is the significance of aeration in fermentation?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the role of bacteriophage as vectors.

Or

- (b) Explain the protocol for confirming the size and orientation of the insert.

12. (a) Enumerate on the major applications of PCR.

Or

- (b) Write in detail on the methodology of Pulse field electrophoresis.

13. (a) Explain the methods of gene therapy for hemophilia.

Or

- (b) What are the applications of ribozymes as therapeutic agents?

14. (a) What are the applications of MAbs in protein purification?

Or

- (b) What are the applications of plant edible vaccines?

15. (a) Explain the industrial process involved in the production of alcohol.

Or

- (b) What is fermentation? Explain the types of fermentors.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write a detailed note on BAC cloning system.
 17. Explain the methodology for real time quantitative PCR.
 18. Discuss on the methods for molecular diagnosis of diabetes.
 19. Explain the methods for production of MAbs.
 20. Explain the methods for the industrial production of amino acids.
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F-7417

Sub. Code

7MBC3C2

M.Sc. DEGREE EXAMINATION, APRIL 2022.

Third Semester

Biochemistry

MEDICAL BIOCHEMISTRY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Differentiate functional and Non-functional plasma enzymes.
2. Give the medical importance of isoenzymes.
3. What is hyperphenyl alaninemia?
4. What is multiple myeloma? Is it confined to bone or spread to other organs.
5. What is renal threshold value? Give RTV for Glucose.
6. Which plasma lipoprotein is increased in obesity? Why?
7. Differentiated hemo dialysis and peritoneal dialysis.
8. What is the diagnostic significance of having ketone bodies in urine?
9. Write the composition of CSF.
10. What is hepatic coma? Is it fatal?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write short note on scope of clinical Biochemistry in diagnosis.

Or

- (b) Comment on the pattern of amylase, lipase in disease diagnosis.

12. (a) Comment on protein deficiency diseases.

Or

- (b) Write on the difference between primary/secondary Crout.

13. (a) Give an account on Lactose intolerance.

Or

- (b) Write a note on any two of the thyroid diseases.

14. (a) Mention the abnormal constituents of urine. How do they help in diagnosis of disease?

Or

- (b) Write shortly on analysis of amniotic fluid and the need for it.

15. (a) Why HbA1c test is conducted? What is its normal/abnormal level and how will you perform the test?

Or

- (b) What is cirrhosis? Explain on its types.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail on the advantages, disadvantages on the use of manual, automation in clinical laboratory practices.

17. Enumerate on the disorders associated with aromatic amino acids with suitable illustration.
18. Discuss on liver disorders developed due to altered lipid metabolism.
19. What are Renal function test? In detail write on the different laboratory tests performed for acute and chronic glomerulonephritis.
20. Explain in detail on the clinical test performed in blood and its role in diagnosing diseases.
