F–5011

Sub. Code
7MBC1C1

M. Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

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. Differentiate exergonic and endergonic reactions.
2. What is meant by isotonic solution?
3. Define stereo isomerism.
4. What is muta rotation?
5. Mention the forces stabilizing the structure of protein.
6. What are metalloproteins?
7. Define rancidity of fats.
8. What are essential fatty acids?
9. State chargerff's rule.
10. What are ribozymes?

Part B (5 × 5 = 25)

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

11. (a) Define pH and derive Henderson- Hasselback equation.

Or

(b) Discuss the law's and functions of thermodynamics.

12. (a) Give a brief account on bacterial cell wall polysaccharides.

Or

(b) Discuss the structure and biological importance of starch.

13. (a) Write a note on protein finger printing.

Or

(b) Explain the denaturation and renaturation property of proteins.

14. (a) Summarize the biological importance of fats.

Or

(b) Classify fattyacids with suitable examples.

15. (a) Highlight the salient features of Watson and crick DNA model.

Or

(b) Describe the denaturation and renaturation kinetics of DNA.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give a detailed account on covalent and non- covalent bonding and state its importance.

17. Elucidate the structure, occurrence and biological importance of manosaccharides.

18. Describe in detailed about the structural organization of protein.

19. Write short notes on

    (a) Glycolipids

    (b) Phospholipids

20. Outline the classification, structure and functions of RNA.

———————

F–5012	Sub. Code
	7MBC1C2

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary / Improvement/ Arrear Examinations

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 meant by cryopreservation?
2. Mention the types of rotors.
3. List the factors affecting electrophoresis.
4. State the principle of ion-exchange chromatography.
5. Mention two biological applications of photoacoustic spectroscopy.
6. What is circular dicroism?
7. Define Curie.
8. Name the isotopes commonly used in biochemical studies.
9. What is MALDI-TOF-TOF?
10. What is tandem mass spectrometry?

Part B (5 × 5 = 25)

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

11. (a) Discuss in brief about density gradient centrifugation and its application.

Or

(b) Give an account on cell sorting by flow cytometry.

12. (a) Explain the principle, technique and applications of gel filtration chromatography.

Or

(b) Outline the steps involved in SDS-PAGE.

13. (a) Highlight the principle and applications of NMR.

Or

(b) Explain the principle and components of spectrophotometer.

14. (a) Give a brief account on gas ionization technique used to measure radioactivity.

Or

(b) Enumerate the biological hazards of radiation and discuss the safety measures in handling radioisotopes.

15. (a) Explain the different methods of protein crystallization.

Or

(b) Give an account on fluorescence polarization immuno assay.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the determination of molecular weight by sedimentation velocity and sedimentation equilibrium method.

17. Describe the principle, technique and application of affinity chromatography.

18. Outline the principle, technique and application of atomic absorption spectrophotometry.

19. Give a detailed account on radioimmuno assay.

20. Summarize the steps involved in the synthesis of peptides.

———————

F–5013	Sub. Code
	7MBC1C3

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary / Improvement/ Arrear Examinations

First Semester

Biochemistry

ENZYME TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define turnover number of an enzyme.
2. What are coenzymes? Give an example.
3. Mention any two significance of K_m .
4. Define allosteric enzymes.
5. State the principle of Ion exchange chromatography.
6. Name any two enzymes which disrupts cell wall.
7. What are the disadvantages of enzyme immobilization?
8. Write any two synthetic support for enzyme immobilization.
9. What are ribozymes?
10. Define biosensors.

Part B (5 × 5 = 25)

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

11. (a) Highlight the salient features of active site.

Or

(b) Describe the theories of enzyme substrate complex formation.

12. (a) Discuss about the various factors affecting enzyme activity.

Or

(b) Give an account on reversible inhibition of enzymes.

13. (a) Explain the purification of enzymes by gel filtration chromatography.

Or

(b) Highlight the criteria for enzyme purity.

14. (a) Discuss the use of enzymes in recombinant DNA technology.

Or

(b) Write a note on the applications of immobilized enzymes.

15. (a) Give a brief account on biochips and biocomputers.

Or

(b) Discuss the use of enzymes as catalytic biosensors.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail about the classification of enzymes.

17. Derive Michaelis-Menten equation for unisubstrate reactions and discuss about the Lineweaver Burk plot.

18. Give a detailed account on enzyme extraction.

19. Elaborate on the different techniques of enzyme immobilization.

20. Outline the principle, components and operation of potentiometric biosensor.

———————

F–5014

Sub. Code
7MBC1C4

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

First Semester

Biochemistry

PLANT BIOCHEMISTRY

(CBCS – 2017 Onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define tetrad.
2. List the components of cell wall.
3. What is VAM.
4. Mention any two nitrogen fixing bacteria.
5. State the significance of cyclic photophosphorylation.
6. Enlist the photosynthetic pigments.
7. What is meant by secondary metabolites?
8. State the importance of antho cyanins.
9. Name any two cell wall enzymes.
10. Write the deficiency symptoms of manganese.

Part B (5 × 5 = 25)

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

11. (a) Describe the structure and functions of chloroplast.

Or

(b) Differentiate primary and secondary cell wall.

12. (a) Discuss the deficiency symptoms of calcium and phosphorus.

Or

(b) Give an account on nitrase assimilation.

13. (a) Discuss about the various factors affecting the rate of phososynthesis.

Or

(b) Write a note on photorespiration

14. (a) Explain the mode of action and application of cytokinins.

Or

(b) Highlight the economic importance of alkaloids and fravanones.

15. (a) Comment on the pathological effects of respiration in plants.

Or

(b) Give an account on pathogen specifying.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe the mechanism of translocation of solutes through phloem.

17. Elaborate on the functions of micronutrients.

18. Explain the steps involved in calvin cycle.

19. Discuss the detail about the synthesis and mode of action of Gibberellins.

20. Describe the mechanism of plantpathogenesis.

———————

F–5015	Sub. Code
	7MBC1E1

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

First Semester

Biochemistry

Elective: FOOD TECHNOLOGY

(CBCS – 2017 Onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write the nutritive value of Ragi.

2. Mention the intrinsic factors that influence microbial growth in food.

3. What is meant by dehydrofreezing?

4. Name the ionizing radiations that is used to control the microorganisms.

5. Mention any two bacteria that spoil fish.

6. Define putrefaction.

7. What are mycotoxins?

8. What are the symptoms of salmonellosis?

9. Define fermentation.

10. State the role of microorganisms in bread making.

Part B ($5 \times 5 = 25$)

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

11. (a) Give a brief account on nutritive value of food.

Or

(b) How will you estimate the number of microorganisms in food.

12. (a) Outline the different methods of food preservation.

Or

(b) Write a note on intermediate- moisture foods.

13. (a) Describe the spoilage of cereals.

Or

(b) Explain the microbial spoilage of fruits and fruit products.

14. (a) Outline the detection of disease causing microorganisms.

Or

(b) Highlight the signs, symptoms and control measures of shigellosis.

15. (a) Write short notes on mushroom farming.

Or

(b) Give an account on fermented meat and fish

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail about the various factors that influence microbial growth in a food.

17. Explain the control of microorganisms by low temperature, drying and chemicals.

18. Elaborate on the microbial spoilage of meat.

19. Describe in detail about botulism and staphylococcal food intoxication.

20. Outline the production process of vinegar.

———————

F–5016

Sub. Code
7MBC2C1

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

Second Semester

Biochemistry

CELL BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Differentiate prokaryotes and Eukaroytes.
2. Explain the sodium- potassium pump.
3. Define suicidal bag.
4. What are the beneficial effects of photorespiration?
5. Comment on the function of human Y chromosome.
6. Enlist the enzymes present in the micro-bodies.
7. Give the significance of meiosis.
8. What is the role of glycoprotein?
9. What are secondary messengers?
10. What is oncogene?

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the role of cytoskeleton in functioning of cell.

Or

(b) Elaborate the role of neurotransmitters in neurotransmission.

12. (a) Explain the role of lysosome in organ regression and phagocytosis.

Or

(b) Give a brief account on energy transfer in chloroplast.

13. (a) Describe the salient features of polytene and lamp brush chromosome.

Or

(b) Explain the ultra structure of nucleosome and its functions.

14. (a) Comment on the statement "cell cycle is highly regulated".

Or

(b) Give an account on cell fusion and its application.

15. (a) Explain the JAK/STAT signaling pathway.

Or

(b) Describe the characteristic features of cancer cells.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail the different components of extracellular matrix, its structure, function and clinical significance.

17. Describe in detail the C3 and C4 pathway of photosynthesis and its regulation with neat schematic sketch.

18. Describe the steps involved in chromosomal banding and its application in human health.

19. Discuss in detail the structural organization of proteosome and its role in regulating cell cycle.

20. Elaborate in detail the intrinsic and extrinsic pathway of apoptosis with suitable illustration.

———————

F–5017	Sub. Code
	7MBC2C2

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

Second Semester

Biochemistry

MICROBIOLOGY AND IMMUNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all the** questions.

1. What is log phase in bacterial growth?

2. What are the major nutrients required for the growth of bacteria?

3. What is lysogeny?

4. Differentiate yeast and moulds.

5. Define haptens. Give any two examples.

6. Define antigenicity.

7. What is membrane attack complex?

8. Differentiate innate and acquired immunity.

9. Define immunosuppression. Give any two drugs used for immunosuppression.

10. Define histocompatability.

Part B $(5 \times 5 = 25)$

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

11. (a) Account on bacterial growth curve with neat sketch.

Or

(b) Explain the physical condition required for bacterial growth.

12. (a) Explain the methods used to control fungus.

Or

(b) Describe the structure of bacteriophage with neat sketch.

13. (a) Given an account on secondary lymphoid organs with neat sketch.

Or

(b) Explain classical complementary activation system with neat sketch.

14. (a) Elaborate on immunological memory with suitable example.

Or

(b) Discuss on cell-mediated immunity with neat sketch.

15. (a) Explain gene organization in MHC complex.

Or

(b) Explain the clinical test required to confirm transplantation.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail about the Gram negative cell wall with neat sketch.

17. Detailed account on the steps involved in viral replication with neat sketch.

18. Explain in detail about the structures of antibody with neat sketch.

19. Discuss in detail about the antigen presenting and processing with neat sketch.

20. Describe the disorders associated with MHC complex.

———————

F–5018

Sub. Code
7MBC2C3

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

Second Semester

Biochemistry

BIOTECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is recombinant DNA?
2. Define blunt end and cohesive end.
3. Define Eastern blot.
4. Differentiate RT-PCR and real-time PCR.
5. What is recombinant vaccine?
6. What is molecular diagnosis?
7. Define somatic gene therapy.
8. What is HGH?
9. Define batch culture.
10. Define synthetic biology.

Part B (5 × 5 = 25)

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

11. (a) Discuss about YAC vector and its application with neat sketch.

Or

(b) Explain the methods used to screen positive clones.

12. (a) Detailed account on the principle and procedure of southern blot.

Or

(b) Explain asymmetric PCR with neat sketch.

13. (a) Discuss in detail about the gene therapy for adenosine deaminase with neat sketch.

Or

(b) Explain molecular diagnosis of cystic fibrosis.

14. (a) Elaborate on the production of edible vaccine with neat sketch.

Or

(b) Explain the production of commercial interferons with neat sketch.

15. (a) Detailed note on different types of aerator used in bioreactor with neat sketch.

Or

(b) Account on the industrial production of lactic acid.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail about the cloning with neat sketch.

17. Differentiate the principle and chemistry involved in reverse transcriptase PCR and real time PCR with neat sketch.

18. Give a detailed account on the molecular diagnosis of tuberculosis and malaria.

19. Describe the production and medicinal application of MAbs.

20. Give an elaborate account on synthetic biology.

F–5019	Sub. Code
	7MBC2E1

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary / Improvement/ Arrear Examinations

Second Semester

Biochemistry

Elective : BIOPROCESS TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. State the role of agitators in fermentation.
2. Mention any two cell lines used in commercial scale.
3. Differentiate aerobic and anaerobic fermentation process.
4. State the objective of aseptic maintenance in fermentation.
5. What is meant by GMO?
6. Define protoplast fusion.
7. List the advantages of biofuels.
8. Define Biomass.
9. Mention the role of urokinase in medical industry.
10. List any two applications of protease in food industry.

Part B (5 × 5 = 25)

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

11. (a) Discuss about the various factors affecting fermentation process.

Or

(b) Give an account on cell disruption.

12. (a) Highlight the importance of agitation, aeration and foam control in fermentation.

Or

(b) Discuss in brief about batch and continuous process of harvesting.

13. (a) Give a brief note on monoclonal antibody.

Or

(b) Write short notes on protoplast fusion.

14. (a) Outline the synthesis of vitamins.

Or

(b) Explain the production of Biomass.

15. (a) Discuss the role of ligases and phosphatases in research industry.

Or

(b) Explain the application of amylase in food industry.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the different types and components of fermentors.

17. Give a detailed account on media formulation and sterilization.

18. Elaborate on hybridoma technology.

19. Describe the production of growth hormones.

20. Discuss the production and application of streptokinase and collagenase in medical industry.

———————

F–5020	Sub. Code
	7MBC2E3

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

Second Semester

Biochemistry

Elective – BIOSTATISTICS AND BIOINFORMATICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define data.
2. What is mean?
3. What is addition rule?
4. Define permutation.
5. What is sampling?
6. What is randomized design?
7. What is central dogma of molecular biology?
8. Define homology.
9. Define Blast.
10. What is global alignment?

Part B (5 × 5 = 25)

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

11. (a) How will you graphically represent the data?

Or

(b) Write a note on coefficient of variation.

12. (a) What is the relationship between binomial distribution and Poisson distribution?

Or

(b) Comment on the prerequisites of research.

13. (a) What is one way anova? Explain.

Or

(b) Give an account on the layout of the thesis.

14. (a) Draw and label the structure of DNA.

Or

(b) Comment on sequence alignment.

15. (a) Write a note on F-cell.

Or

(b) Explain the types of trees constructed in phylogeny.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give a brief account on the measurement of central value.

17. Write a brief note on counting methods.

18. Give a brief account on chi-square test and association of attributes.

19. Give an account on substitution matrices with examples.

20. What is drug discovery? Give its application in various fields.

———————

F–5021

Sub. Code
7MBC2E4

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

Second Semester

Biochemistry

Elective: MOLECULAR GENETICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are molecular chaperons?

2. Define Pribnow box.

3. List the major protein components of eukaryotic chromosome.

4. Differentiate between inducible and repressible enzyme.

5. Define linkage group with an example.

6. What is tetrad analysis?

7. Write the importance of P element.

8. Define bacterial transformation.

9. What is a karyotype?

10. What is polyploidy?

Part B (5 × 5 = 25)

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

11. (a) Distinguish the role of proteins involved in DNA replication.

Or

(b) Explain the post transcriptional modification of mRNA.

12. (a) With a neat sketch, explain the structure of chromosomes.

Or

(b) Give an account on composite transposons.

13. (a) Construct the protocol to prepare a chromosome map with the help of three - point test crosses.

Or

(b) Highlight on the genetic diseases involved in faulty DNA repair.

14. (a) Present the mode of transposition of DNA transposons.

Or

(b) Explain the mechanism of bacterial conjugation.

15. (a) Highlight the use of pedigree analysis in inheritance studies.

Or

(b) Bring out the role of chromosomal variations in evolutions.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the mechanism of protein synthesis in prokaryotes.

17. Illustrate the lytic and lysogenic cycle of bacteriophages.

18. Discuss the types and effects of gene mutation with suitable example.

19. Interpret the process of generalized and specialized transduction.

20. Elaborate on sex linked inheritance in human beings?

———————

F–5022	Sub. Code
	7MBC3C1

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary / Improvement/ Arrear Examinations

Third Semester

Biochemistry

GENE EXPRESSION AND METABOLIC REGULATION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What regulates gene expression?
2. How does Vitamin D analogs modulate gene expression?
3. What is Calcitonin?
4. Define signal transduction.
5. Name any four aminosugars.
6. What is gluconeogenesis?
7. State the functions of arginase.
8. Define lipogenesis.
9. Write the symptoms of urolithiasis.
10. What is salvage pathway?

Part B (5 × 5 = 25)

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

11. (a) Enumerate the role of stimulators in gene expression.

Or

(b) Give an account on RNA interference.

12. (a) Explain the role of CAMP as a second messenger.

Or

(b) Comment on G-protein coupled receptor kinase.

13. (a) Outline the steps involved in glycogenolysis.

Or

(b) Write short notes on feedback regulation.

14. (a) Describe the synthesis of ketone bodies.

Or

(b) Brief on the altered mechanism involved in starvation.

15. (a) Discuss on the various factors that affect the level of purine and pyrimidine rate.

Or

(b) Give an account on hyper and hypo-uricemias.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Elaborate on the regulation of gene expression in lac operon.

17. Discuss about the angiotension mechanism in blood pressure regulation.

18. Elucidate the steps involved in glycolysis.

19. Explain the regulation of fattyacid synthesis.

20. Outline the steps involved in the breakdown of purines.

———————

F–5023	Sub. Code
	7MBC3C2

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

Third Semester

Biochemistry

MEDICAL BIOCHEMISTRY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all the** questions.

1. What is IU?
2. What is the clinical significance of high ACP?
3. What is Phenylketonuria?
4. What is γ – globulinemia?
5. What is atherosclerosis?
6. What is diabetic coma?
7. What is the diagnostic significance of porphyrin?
8. What are ketone bodies?
9. Which hormone is detected in the immunological test for pregnancy?
10. How is hepatic coma diagnosed?

Part B (5 × 5 = 25)

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

11. (a) Give a detailed note on functional and non-functional plasma enzymes.

Or

(b) Explain the significance of lipase in health and disease.

12. (a) Write a note on the disorders of plasma proteins metabolism.

Or

(b) What is Multiple myeloma? Write a note on its symptoms.

13. (a) Explain the symptoms of Lactose intolerance.

Or

(b) Write a detailed note on the disorders of lipid metabolism.

14. (a) Discuss on the renal function in acute and chronic Glomerulonephritis.

Or

(b) Elaborate on the routine qualitative analysis carried out for urine and urinary sediments.

15. (a) Discuss in detail on liver function test.

Or

(b) Explain the procedure for Sickle cell anaemia screening.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write a note on the major enzymes used for disease diagnosis.

17. Write a detailed note on primary and secondary Gout.

18. Elaborate on the different types of Glycogen storage diseases.

19. Discuss on the laboratory test for peritoneal, renal calculi and haemodialysis.

20. Explain the types of diseases that can be diagnosed with the cerebrospinal fluid.

———————

F–5024	Sub. Code
	7MBC3C3

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

Third Semester

Biochemistry

MOLECULAR BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define LINE and SINE.
2. What are Pseudogenes?
3. What are the different types of topoisomerases?
4. Why is proof reading significant in DNA replication?
5. Define auxotrophic mutant.
6. What do you mean by complementation?
7. Give the Schematic representation of specialised transduction.
8. What are p-elements in Drosophila?
9. Define hermaphrodite.
10. Define homeotic genes.

Part B (5 × 5 = 25)

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

11. (a) What are the genes specific for mitochondrial DNA? Explain.

Or

(b) Briefly explain the solenoid model of chromosomes.

12. (a) Write the steps involved in post-transcriptional modification.

Or

(b) Discuss the inhibitors of DNA replication.

13. (a) Differentiate between complete and incomplete linkage.

Or

(b) Give a brief note on genetic recombination.

14. (a) Briefly discuss the mechanism of transformation and gene mapping.

Or

(b) Give a short account on Hfr conjugation.

15. (a) How is sex determined in drosophila? Explain.

Or

(b) Describe the Developmental pathway in C.elegans.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on bacterial transposons.

17. Give a detailed account on the steps of Translation.

18. What is chromosome mapping? Explain.

19. Explain the mechanism of transposable elements with examples.

20. How is Hardy-weinberg equilibrium maintained? Write the factors influencing this equilibrium.

F–5025	Sub. Code
	7MBC3E2

M. Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

Third Semester

Biochemistry

Elective: DRUG MODELLING AND DESIGNING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all the** questions.

1. What is PubChem?
2. What is meant by lead compound?
3. What is patent?
4. What is fast track drug approval?
5. Define synergism
6. What is pharmacodynamics.
7. Define diffusion.
8. List out the composition of biological membrane.
9. What is prodrug?
10. Define CADD.

Part B (5 × 5 = 25)

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

11. (a) Write about the molecular visualization tools used in drug design.

Or

(b) Briefly outline the current approaches in drug designing.

12. (a) What is treatment IND? Explain

Or

(b) Give an short note on preclinical trials

13. (a) What is meant by therapeutic index? Explain.

Or

(b) Write an note on structure based drug design.

14. (a) Discuss the effect of food on drug absorption

Or

(b) Explain briefly on physiological variables affecting drug absorption in GI tract

15. (a) Write an short note on 3DQSAR.

Or

(b) Discuss briefly on screening strategies for identification of lead compounds

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail on the process of the drug development.

17. Explain in detail on target validation technology.

18. Write an detailed account on adverse effect of drug interaction.

19. Explain the mechanism of drug transport across membrane.

20. Explain in detail on use of computer graphics in drug design.

———————

F–5026	Sub. Code
	7MBC3E3

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary / Improvement / Arrear Examinations

Third Semester

Biochemistry

Elective – HORMONES AND CELL SIGNALING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Give two examples for steroid hormones.

2. What are autocoids? Give example.

3. Write the physiological function of GPCR.

4. Name the Genetic diseases caused by mutation in GPCR genes.

5. Mention the ligands for receptor tyrosine kinase.

6. What is JAK?

7. What are secondary messengers?

8. What are cytosolic receptor? Give example.

9. Write the role of estrogen receptor in cancer.

10. How many types of receptors are present in the cell?

Part B (5 × 5 = 25)

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

11. (a) Give a short note on mechanism of action of peptide hormones.

Or

(b) Write a note hormones acting on intercellular receptor.

12. (a) What is GPLR super family? Explain in detail.

Or

(b) Discuss the structure – function relationship of GPLR.

13. (a) Explain the ligand induced activation of receptor tyrosine kinase.

Or

(b) "Phospholipid as signal transducer" – substantiate.

14. (a) Give a brief account on signal transduction mechanism of cytosolic receptors.

Or

(b) Illustrate the structure of thyroid superfamily of receptors.

15. (a) Comment on G-protein inactivating mutation.

Or

(b) Write a short note in hormone resistance syndrome.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail on classification of hormone based on action.

17. Give an detailed account on signal transduction mechanism of GPLR.

18. Elaborate on intracellular signaling pathway.

19. Discuss the mechanism of signal reception, transduction and response of steroid hormones receptor.

20. "Hormone receptor in the progression of cancer" – Discuss.

———————