AF-3868 MBC1C1

M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Biochemistry

CHEMISTRY OF BIOPOLYMERS

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Make a note on mass number.

2. Write the electronic structure of phosphorous

3. Write the Haworth and Fischer formula of glucose.

4. Differentiate between starch and glycogen.

5. Write short notes on essential fatty acids.

6. What are nucleoproteins ?

7. Make a note on rancidity of fats.

8. What is phosphatidyl inositol ?

9. Define Tm of nucleic acid.

10. Write short notes on hyperchromic effect.

Section B (5 × 5 = 25)

Answer **all** the questions

11. (a) Describe the types and importance of covalent bond.

(*Or*)

(b) Discuss in detail about ionic bond and electrostatic bond.

12. (a) Give a brief account on isomerism and its types.

(*Or*)

(b) Explain in detail about biosynthesis of starch.

13. (a) Describe the peptide bond and its characteristics.

(*Or*)

(b) Classify aminoacids based on its structure.

14. (a) Describe in detail about the properties and functions of phospholipids.

(*Or*)

(b) Discuss the structure and functions of glycolipids.

15. (a) Give an account on replication of RNA.

(*Or*)

(b) Describe the denaturation and renaturation of DNA.

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the structure and physical properties of water. Write the biochemical reaction involving water.

17. Write the following chemistry of monomeric units of polysaccharide :

(a) Methylation.

(b) Acetylation.

(c) Acid hydrolysis.

(d) Enzymic hydrolysis.

(e) Periodic oxidation.

18. Explain the conformation study on structure and functions of collagen and keratin.

19. Write an essay on structure and properties of saturated and unsaturated fatty acids.

20. Discuss in detail about structure and properties of RNA.

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AF-3869 **MBC1C2**

M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Biochemistry

ANALYTICAL BIOCHEMISTRY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Define Flow cytometry.

2. How to calculate Swedberg value ?

3. Write the principles of paper chromatography.

4. Write short notes on mobile phase.

5. What is Eλ.

6. What is the principle behind colorimeter ?

7. Make a note on stripping.

8. Write short note on ^{32}P.

9. Write short note on redox reaction.

10. Give an account on Ion-Selective electrode.

Section B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Describe the components of analytical centrifuge.

(*Or*)

(b) Explain the cell distribution technique.

12. (a) Write down the principle and procedure of paper electrophoresis.

(*Or*)

(b) Describe about affinity chromatography.

13. (a) Explain the principle and applications of mass spectroscopy.

(*Or*)

(b) Write short notes on absorption and transmission spectroscopy.

14. (a) Describe the safety measures in handling radioisotopes.

(*Or*)

(b) Discuss in detail about nuclear emulsion.

15. (a) Explain the principle and applications of Glass electrode.

(*Or*)

(b) What is redox potential ? Explain it.

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Elaborately discuss about density gradient centrifugation.

17. What are the factors affecting SDS-PAGE electrophoresis ? Explain.

18. Explain the principle, instrumentation and applications of NMR.

19. Give an account on scintillation counting.

20. Write an essay on working principle of biosensors with its applications.

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AF-3870 **MBC1C3**

M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Biochemistry

ENZYME TECHNOLOGY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define : Active site.

2. What is turn over number ?

3. What is Km ?

4. What are allosteric enzymes ?

5. Give the names of ion-exchangers.

6. What is Salting–out ?

7. Define : Immobilized enzymes.

8. List the disadvantages of Immobilization techniques.

9. What is Biosensor ?

10. What is Synzyme ?

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write note on enzyme specificity.

(*Or*)

(b) Explain the bi–substrate reaction.

12. (a) Explain the factors affecting the enzyme activity.

(*Or*)

(b) Discuss the mechanism of action of ribonuclease.

13. (a) Explain Gel filtration chromatography.

(*Or*)

(b) Explain the downstream processing of enzyme.

14. (a) Give the applications of Immobilized enzymes.

(*Or*)

(b) Write note on Immobilized enzyme bioreactors.

15. (a) Explain the criteria for selecting an ideal biosensor.

(*Or*)

(b) Explain the principle, components and operations of potentiometric biosensor.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on Enzyme classification.

17. Describe Enzyme inhibition ?

18. Explain the principle and instrumentation of affinity chromatography.

19. Write notes on immobilization techniques.

20. Explain the principles, components and operations of Optical biosensor.

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AF-3871 MBC1E1

M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Biochemistry

Elective—FOOD TECHNOLOGY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Define Food.

2. How will you define nutritive value of food ?

3. List out the chemicals used in food preservation.

4. Define Canning.

5. Mention the factors that influence Spoilage.

6. What are the changes that occur during Spoilage ?

7. List out any four food hazards.

8. Define Salmonellosis.

9. What is milk yoghurt.

10. Define Fermentation.

Section B (5 × 5 = 25)

Answer **all** the questions

11. (a) How will you estimate the number of micro organisms present in food ?

(*Or*)

(b) Write the types and sources of microorganisms associated with food.

12. (a) Write note on methods of food Preservation.

(*Or*)

(b) Explain the control of microorganisms by Radiation and Ionization methods.

13. (a) Write short note on Vegetable Spoilage.

(*Or*)

(b) Explain meat and fish spoilage.

14. (a) Explain the following bacterial disease :—

(i) Staphylococcal intoxication.

(ii) Botulism.

(*Or*)

(b) What are the detection methods used to identify the disease causing microorganisms ?

15. (a) What are the basic principle applied for food fermentation ?

(*Or*)

(b) List out the applications of fermentation.

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the conditions that influence the microbial growth in food.

17. Write the following methods of food preservation :—

(a) Preservation by temperature.

(b) Preservation by dying.

(c) Preservation by chemicals.

18. Describe in detail on Composition and Spoilage of food.

19. Write an essay on food born viruses.

20. How will you produce wine through fermentation ?

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AF-3872 MBC1E2

M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Biochemistry

Elective—NUTRITIONAL BIOCHEMISTRY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. How can you calculate the BMR ?

2. Write the composition of plasma lipoprotein.

3. Define Malnutrition.

4. Make a note on starvation.

5. List out the water soluble vitamins.

6. Write any three significance of dietary iron.

7. List out the predisposing factors for diabetes mellitus.

8. Comment on phenylketonuria.

9. Write short note on allergy.

10. What is the role of antigen ?

Section B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write the factors affecting BMR and SDA.

(*Or*)

(b) Differentiate between the direct and indirect calorimetry.

12. (a) Brief out the types of amino acid imbalance.

(*Or*)

(b) What are the factors influencing the nitrogen balance ?

13. (a) Give the biochemical functions of vitamin A, C and E.

(*Or*)

(b) Describe the nutritional requirements of infants and children.

14. (a) Explain about the prevention and treatment of dental caries.

(*Or*)

(b) Discuss in detail about the prevention and treatment of renal failure.

15. (a) Give a brief account on food born toxicants.

(*Or*)

(b) What are the toxic substance present in animal food stuffs ? Explain it.

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the properties and functions of major classes of dietary lipids.

17. Discuss in detail about metabolic disorders, clinical features and treatment of marasmus.

18. Write the nutritional significance for any five minerals.

19. Describe the role of diet, nutrition in the prevention and treatment of atherosclerosis.

20. Describe in detail about types of hypersensitivity.

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AF-3873 MBC2C1

M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Biochemistry

CELL AND MOLECULAR BIOLOGY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is active transport ?

2. What are neurotransmitters ?

3. Name the different types of chlorophyll.

4. Give the structure of ATP.

5. What is chromosome bonding ?

6. What are polytene chromosomes ?

7. Define : Operon.

8. What are oncogenes ?

9. Name the malarial parasites.

10. Define : AIDS.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write short notes on glycoconjugates.

(*Or*)

(b) Discuss about transport channels and pumps.

12. (a) Explain photosynthesis.

(*Or*)

(b) Explain the structure of chloroplast.

13. (a) Explain the chemical composition of chromosome.

(*Or*)

(b) Explain the nucleic acid structure.

14. (a) Describe the eukaryotic gene regulation.

(*Or*)

(b) Discuss about chemical carcinogenesis.

15. (a) Give an account on cell differentiation and development of Arabidosis.

(*Or*)

(b) Explain the life cycle of Filarial Parasites.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the structure and organisation of membrane.

17. Describe the molecular events of ETC.

18. Give a detailed note on DNA transcription.

19. Explain the regulation of gene expression in prokaryotes using operon concept.

20. Explain the life cycle of Malarial parasites.

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AF-3874 MBC2C2

M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Biochemistry

MICROBIOLOGY AND IMMUNOLOGY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What are Prototrophs and Auxotrophs ? Give examples.

2. Write the composition of Bacterial cell wall.

3. List out the characteristics of virus.

4. Give the biological importance of Fungi.

5. Define Haptens. Give example.

6. What are Allotypes and Idiotypes ?

7. Differentiate Endotoxin and Exotoxin.

8. Define Immunological Memory.

9. What is the role of Immunosuppressive agents in transplantation ?

10. Give short notes on AIDS.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write the steps involved in the Isolation and Maintenance of pure culture.

(*Or*)

(b) Define Microbial growth and explain the biological significance of bacterial growth curve.

12. (a) Give a brief note on the classification and characteristics of Fungi.

(*Or*)

(b) Discuss the production of citric acid.

13. (a) Write short notes on Thymus.

(*Or*)

(b) Draw a neat sketch of Lymphnode and give its significance.

14. (a) Discuss the steps involved in the processing and presentation of Antigens.

(*Or*)

(b) Write down the differences between primary and secondary immune response and add a note on its importance.

15. (a) Explain Humoral immunity in brief.

(*Or*)

(b) What are the T-cell deficiency disorders ? Explain any two.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain Transformation Transduction and conjugation in detail.

17. What are DNA and RNA virus ? Give an example of each and discuss briefly.

18. Discuss complement and its factors.

19. Give a detailed note on Antiviral Immunity.

20. Define Autoimmunity and discuss any five Autoimmune diseases.

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AF-3875 MBC2C3

M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Biochemistry

BIOTECHNOLOGY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Define Cauliflower Mosaic Virus.

2. List out the types of plasmids.

3. What are isoschizomers ?

4. Give short note on RFLP ?

5. Write any two uses of Polyethylene glycol.

6. Make a note on Ti plasmid.

7. Define Molecular fingerprinting.

8. Write brief note on SDS-PAGE.

9. Write short notes on novel proteins.

10. Write brief note on super bug.

Section B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write notes on Bacterial Artificial Chromosome (BAC).

(*Or*)

(b) Explain the structure and properties of pBR 322.

12. (a) Differentiate between restriction enzymes I and II.

(*Or*)

(b) Discuss in detail about gene mapping.

13. (a) Discuss in detail Ti plasmid mediated gene transformation.

(*Or*)

(b) Briefly explain gene transfer by electroporation method.

14. (a) Explain the Northern blotting techniques.

(*Or*)

(b) Discuss in detail about the quantitative analysis of DNA.

15. (a) Explain the uses of edible vaccines.

(*Or*)

(b) Comment on agrobacterium tumifaciens.

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail about the expression vectors.

17. Elaborately discuss about the Single cell protein.

18. Describe about and *invitro* fertilization techniques (IVF).

19. Describe the method of DNA fingerprinting.

20. Explain in detail about the production of transgenic plants.

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AF-3876 MBC2E1

M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Biochemistry

Elective—BIOPROCESS TECHNOLOGY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Continuous rotary filters.

2. Log phase.

3. Reverse osmosis.

4. Isoelectric precipitation.

5. T-DNA.

6. Mini chromosomes.

7. Biofuels.

8. Penicillin.

9. Blunt cut end.

10. Bam HI.

Part B (5 × 5 = 25)

Answer **all** the questions

11. (a) Write short notes on Continuous and Batch reactors.

(*Or*)

(b) Give short notes on the cell lines used on commercial scale operation.

12. (a) Explain the synthesis of erythropoitin.

(*Or*)

(b) Briefly explain the synthesis of growth hormone.

13. (a) Write short notes on the types of restriction endonuclease.

(*Or*)

(b) Explain the role of trypsin and chymotrypsin in medical industry.

14. (a) What are the extracellular enzymes ? How are they used in fermentors ?

(*Or*)

(b) Brief on aerobic fermentation.

15. (a) Explain briefly protoplast fusion.

(*Or*)

(b) Write short notes on GMO.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the downstream processes.

17. Explain in detail about the separation of soluble products from the media Also note on its purification.

18. Write in detail about gene transfer technology.

19. Explain the synthesis of vitamins.

20. List out the importance of enzymes in food industry.

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AF-3877 MBC2E2

M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Biochemistry

Elective—NANOTECHNOLOGY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Write any two uses of cellulose.

2. Nucleic acid.

3. Resonance.

4. Ligase.

5. Disulphide bridge.

6. Nanites.

7. Microfluidics

8. Biochip.

9. Nanozurveillance.

10. Fuel cells.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the role of NMR spectroscopy in nanotechnology.

(*Or*)

(b) Brief on the types of restriction endonuclease.

12. (a) Give an account on lipid used for carrying information.

(*Or*)

(b) How are the polysaccharides uded to maintain the structure ?

13. (a) Discuss the secondary any tertiary structure of a protein

(*Or*)

(b) Explain the natural bionanotechnology designing.

14. (a) Expalin biomolecular sensing.

(*Or*)

(b) Explain nanoassembly.

15. (a) Write short notes on the role played by enzymes in solving the problems.

(*Or*)

(b) Discuss about the sticky finger problem.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain modern trends in bionanotechnology.

17. Give detail on electron microscopy.

18. Explain the biomolecualr structure.

19. Explain the functional principles of Bionanotechnology.

20. Describe about the potential dangers regarding Bionanotechnology.

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AF-3878 **MBC3C1**

M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Biochemistry

GENE EXPRESSION AND METABOLIC REGULATION

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Define Cheprones.

2. What is the difference between Stimulators and Signals?

3. Define Signal transduction.

4. Mention the types of receptors.

5. What are coupled reactions ?

6. What is the role of NADPH in carbohydrate metabolism ?

7. Define Ketogenesis.

8. What is the end product of Urea cycle ?

9. How the metabolites are inter converted ?

10. What are Nucleotides ?

Section B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write note on Lac operon.

(*Or*)

(b) Write note on Supressor and Repressor proteins.

12. (a) Explain the role of Angiotension mechanism in blood pressure regulation.

(*Or*)

(b) How the Calcium acts as secondary messenger.

13. (a) What are the rate limiting factors involved in carbohydrate metabolism ?

(*Or*)

(b) Write the ratio on ATP/ADP in carbohydrate metabolism.

14. (a) Explain Urea Cycle.

(*Or*)

(b) How the p^H and temperature controls the human body ?

15. (a) Mention the factors that affect the levels of Purine and Pyrimidine rate.

(*Or*)

(b) Explain the key enzymes involved in nucleotide regulation.

Section C (3 × 10 = 30)

Answer any **three** of the following.

16. Write an essay on Oncogenos.

17. Mention the role of hormones in Calcium and Phosphorus metabolism.

18. Describe the key enzymes involved in Carbohydrate metabolism.

19. Explain the altered mechanism in starvation and diabetes.

20. Explain the pyrimidine biosynthesis.

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AF-3879 MBC3C2

M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Biochemistry

MEDICAL BIOCHEMISTRY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Give the Composition of CSF

2. What is Quality Control ?

3. What is Fanconi Syndrome ?

4. What is Sickle cell anemia ?

5. What is fatty liver ?

6. What is diabetic coma ?

7. What is diabetes insipidus ?

8. Define : Free Water Clearance.

9. Define : Gout.

10. What is prothrombin time ?

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the method of Collection and preservation of Urine.

(*Or*)

(b) Write a brief review of units used in expressing Clinical values and Standard solution.

12. (a) Give an account on disorders of amino acid metabolism.

(*Or*)

(b) Discuss the disorders associated with Bili rubin Metabolism.

13. (a) Explain the secondary degenerative changes associated with diabetes mellitus.

(*Or*)

(b) Write note on Galactosemia.

14. (a) Explain Laboratory test for peritoneal and hemodialysis.

(*Or*)

(b) Write note on abnormal constituents of urine.

15. (a) Explain the origin, composition and analysis of amniotic fluid.

(*Or*)

(b) Give an account on gastro intestinal disorders.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss about the enzyme pattern in health and disease.

17. Give an account on liver function tests.

18. Explain the types of glycogen storage disease.

19. Give an account on renal failure.

20. Explain the role of RFLPs and PCR in disease diagnosis.

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AF-3880 MBC3C3

M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Biochemistry

BIOSTATISTICS AND BIOINFORMATICS

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** questions.

1. Make a note on the scope of statistics in medical science.

2. How can you relate the arithmetic, geometric and harmonic means ?

3. Briefly explain the counting methods for determining the number of outcomes.

4. How do you calculate Binomial and Poisson distribution ?

5. Compare and contrast between Two-Tailed and One tailed tests

6. Define Student's t-distribution.

7. Write an account on substitution matrices for amino acids.

8. Give an account on Bcosom.

9. Comment on BLAST.

10. What is the scope of Needleman Wunsch algorithm ?

Section B (5 × 5 = 25)

Answer **all** questions

11. (a) Calculate in general the variance and co-efficient of variance.

(*Or*)

(b) Write short notes on Skewness and Kurtosis.

12. (a) Brief note on conditional rule of probability.

(*Or*)

(b) Discuss the characteristics of Poisson distribution.

13. (a) Explain briefly about any one applciation of χ^2 test.

(*Or*)

(b) Write short notes on analysis of frequencies.

14. (a) Explain the process of Blast similarity searching.

(*Or*)

(b) Write short notes on FASTA.

15. (a) Describe in detail about Phylogenic tree.

(*Or*)

(b) Discuss briefly about primer design micro fluidics.

Section C (3 × 10 = 30)

Answer any **three** of the following.

16. Explain in detail about the analysis of correlation using Scatter diagram method.

17. Compare and contrast Poisson, Binominal and Normal distribution.

18. How can you estimate the confidence interval of population mean ? Explain the following :

    (a) Mean is unknown.

    (b) Mean is known.

19. Describe in detail about the substitution matrix for amino acids.

20. Explain the application of Pharmacogenomics and Toxicogenomics.

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AF-3881 MBC3E1

M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Biochemistry

Elective—BIOPHARMACEUTICALS

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. What is the importance of systemic route of drug administration ?

2. Define First order in and First order out.

3. What are soft drugs ?

4. Write short note on antibacterial substances.

5. Write the active principle of drug discovery.

6. Write brief note on drug resistance.

7. Give an account on tetracyclin.

8. Make a note on terpenoids.

9. What is the role of interleukins ?

10. Write note on muteins.

Section B (5 × 5 = 25)

Answer **all** the questions.

11. (a) How are drugs eliminated ? Explain it.

(*Or*)

(b) Write a brief account on high throughput screening.

12. (a) Describe the oxidation and reduction reactions of drug metabolism.

(*Or*)

(b) Discuss in detail about physico chemical parameters in drug design.

13. (a) Write brief note on substances derived from insects.

(*Or*)

(b) Describe the sources of active principles.

14. (a) Write comment on probiotics.

(*Or*)

(b) Describe in detail about the shikimate pathway.

15. (a) Write note on human growth hormone of therapeutic protein.

(*Or*)

(b) Explain the advantages of monoclonal antibodies.

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail about the pharmacodynamics of protein therapeutics.

17. Explain the molecular modification of lead compounds.

18. Elaborately discuss the assay systems and knockout mice models.

19. Describe the control mechanism for plant secondary metabolites

20. Explain in detail production, limitation and application of monoclonal antibodies.

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AF-3882 **MBC3E2**

M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Biochemistry

Elective : DRUG MODELLING AND DESIGNING

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define ADMET.

2. Write short notes on Pharmacokinetics.

3. What do you mean by IND ?

4. Write the two ethical issues in Clinical testing.

5. What is Synergism ?

6. What are the adverse drug reactions ? Name them.

7. Name any two hormones and write their role in drug absorption.

8. Write short notes on Intestinal transporters.

9. Define Screening.

10. Give a note on structure based drug design.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the history of Drug design and Modelling.

(*Or*)

(b) What are the principles and the molecular visualization underlying the drug design ?

12. (a) Discuss in detail the Fast tracts approval.

(*Or*)

(b) Give an account on the steps involved in developing new drugs.

13. (a) Write a note on Drug potency and efficacy.

(*Or*)

(b) Explain the drug interactions briefly.

14. (a) Give a detailed note on the Biotransformation of drugs.

(*Or*)

(b) Give an account on Transport Mechanisms.

15. (a) Discuss Mass Ligand.

(*Or*)

(b) Explain the procedure of identifying the leads for New drug discovery.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss the new trends of Modelling and explain the applications of Pharmokinetics.

17. Explain in detail the New drug development process.

18. Write short notes on :

(a) Pharmacodynamics.

(b) Toxicokinetics.

19. Describe the transport mechanisms of drugs across the biological membranes.

20. Discuss the binding screening strategy for new drug discovery.

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AF-3883 **MBC4E1**

M.Sc. DEGREE EXAMINATION, APRIL 2011

Fourth Semester

Biochemistry

Elective—HORMONES AND CELL SIGNALLING

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What are Iodothyronines ? Note its importance.

2. List out the differences between protein and steroid hormones.

3. Give short notes on the structure of G-protein.

4. Define Cell Signalling and Signal Transduction.

5. Write a short notes on the importance of Adenylate cyclase.

6. What do you mean by CREB ? Add a note on it.

7. Give the significance of Transcription regulating factors.

8. Write down the differences between cytosolic and Nuclear receptors.

9. Give any four most important clinical importance of Hormone signalling.

10. Write short notes on Type II Diabetes.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the action of steroid hormones in brief.

(*Or*)

(b) Give a detailed note on the types and functions of receptors.

12. (a) List out and explain the mutations and their importance in G-protein genes.

(*Or*)

(b) Give a brief note on G-protein coupled receptors.

13. (a) Explain JAK-STAT pathway.

(*Or*)

(b) Discuss the role of calcium as a secondary messenger.

14. (a) Define HRE and explain its role in cell signalling.

(*Or*)

(b) Discuss the target gene interaction for the regulation of transcription.

15. (a) Write briefly on the Hormone receptors which leads to the development of cancer.

(*Or*)

(b) Discuss the Receptor gene mutations.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write a detailed note on the classification of Hormones based on structure and functions.

17. Discuss the role of G-protein in signal Transduction..

18. Give the cascade pathway of Receptor serine kinase and explain its importance.

19. Give a detailed note on the Steroid - Thyroid superfamily of receptors.

20. List out the clinical importance of Hormone signalling.

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AF-3884 MBC4E2

M.Sc. DEGREE EXAMINATION, APRIL 2011

Fourth Semester

Biochemistry

Elective—PLANT BIOCHEMISTRY

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. What are Plastids ?

2. Mention any two functions of phloem.

3. Write the deficiency symptoms caused by Iodine.

4. How the sulphates are assimilated ?

5. Define photophosphorylation.

6. What are the roles of Thylakoid ?

7. Write the role of ethylene in plant growth.

8. What are phenolic glycosides ?

9. Mention the stages of pathogenesis.

10. Define Phytochrome.

Section B

(5 × 5 = 25)

Answer **all** the questions

11. (a) Give the Ultra structure and types of chromosomes.

(*Or*)

(b) Draw the ultra structure and mention the functions of Mitochondria.

12. (a) Write short note on role and deficiency sysmptoms of copper.

(*Or*)

(b) Write the following :

(i) Nitrate assimilation.

(ii) Sulphate assimilation.

13. (a) Explain the C_3 cycle.

(*Or*)

(b) Write note on biosynthesis of starch.

14. (a) How the alkaloids are biosynthesized ? Explain.

(*Or*)

(b) Write note on plant growth inhibitors.

15. (a) Write the mechanism of disease resistance.

(*Or*)

(b) Explain the biochemistry of pathogen specificity.

Section C (3 × 10 = 30)

Answer any **three** of the following.

16. Describe in detail on mechanism for movement of solutes.

17. Give a detailed account on Nitrogen cycle.

18. Explain in detail about light and dark reaction.

19. Write the mechanism of action of Gibberellins.

20. Give a detail account on physiology and biochemistry of flowering and ripening.

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