SHRIMATI INDIRA GANDHI COLLEGE

(Nationally Accredited at 'A' Grade (3rd Cycle) By NAAC)

Tiruchirappalli – 2.

QUESTION BANK FOR

M.Sc BIOCHEMISTRY

2017-2018

DEPARTMENT OF BIOCHEMISTRY

CONTENT

P8BC2

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry

BIO ANALYTICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What is transmittance?
2. Define Phosphorescence.
3. What is Svedberg unit?
4. What is meant by half-life of a radioactive element?
5. Define the term electrophoretic mobility.
6. What is RFLP?
7. What are called ion exchange resins? Give example.
8. Mention the uses of gel permeation chromatography
9. What is *insitu* PCR?
10. What are called oncogenes?

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Explain the principle and instrumentation of UV-Visible spectroscopy.

(or)

(b) Enumerate the applications of luminometry.

12. (a) Describe the major components of an ultracentrifuge.

(or)

(b) Highlight on autoradiography.

13. (a) Give an account on gas chromatography.

(or)

(b) Illustrate the steps involved in immune affinity chromatography.

14. (a) Give an account on gas chromatography.

(or)

(b) Illustrate the steps involved in immune affinity chromatography.

15. (a) Write about the use of PCR in prenatal diagnosis.

(or)

(b) Explain the DNA foot printing technique.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Write a detailed note on spectrofluorimeter.
17. Write an elaborate note on cell fractionation methods.
18. Discuss in detail about the electrophoresis of nucleic acids.
19. Explain the principle, procedure and applications of TLC.
20. Describe Ame'smutagenicity testing assay.

P8BC2

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2015

Biochemistry

BIO – ANALYTICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. State the principle of Nephelometry.
2. Define Beer – Lambert's law
3. Comment on Svedberg units.
4. What is meant by RCF?
5. Mention any four supporting media used in electrophoresis.
6. Highlight the concept of spacer arm.
7. Mention any four anion exchangers.
8. Expand : SDS -PAGE
9. What is RT-PCR?
10. Comment on polymerase errors.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Give an account of UV-visible spectrophotometry.

(or)

(b) Explain the principle and applications of atomic flame spectrophotometer.

12. (a) Write notes on Analytical centrifuge.

(or)

(b) Give an account of Autoradiography.

13. (a) Discuss the steps involved inAgarose Gel electrophoresis.

(or)

(b) Describe the DNA sequencing gels.

14. (a) Explain chromatofocusing.

(Or)

(b) Describe column chromatography.

15. (a) Critically analyse DNA foot printing.

(Or)

(b) Write an account on comet assay.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Write an essay on spectrofluorimetry.
17. Discuss the principle and applications of liquid scintillation counter.
18. Write an account on Western blotting.
19. Describe the principle, instrumentation and applications of HPLC.
20. Critically examine the steps involved in PCR technique.

P8BC2

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2015

Biochemistry

BIO – ANALYTICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. State the principle of Luminometry.
2. Mention the application of atomic flame spectrophotometry.
3. Comment on RCF.
4. What is meant by sedimentation co-efficient?
5. How is polymerization of the gel achieved?
6. Highlight the role of coomasie blue in electrophoresis.
7. Illustrate the concept of spacer arm with the help of diagram only.
8. Define chromate focusing.
9. Comment on RT-PCR.
10. What are polymerase errors?

PART B – (5x5=25)

Answer All Questions, choosing either (a) or (b).

11. (a)Give an account of spectrofluorimetry.

(or)

(b) Explain Beer-Lambert relationship.

12. (a) Enumerate the applications of radioisotopes in biology.

(or)

(b) Write an account on Liquid Scintillation counting.

13. (a) Discuss the various supporting media used in electrophoresis.

(or)

(b) Critically analyse the steps involved in isoelectric focusing.

14. (a) Describe Ion exchange chromatography.

(Or)

(b) Explain the principle and applications of thin layer chromatography.

15. (a) Write notes on Comet assay.

(Or)

(b) Give an account on DNA finger printing.

PART C – (3x10=30)

Answer any THREE questions.

16. Describe the principle, instrumentation and applications of UV-Visible spectrophotometer.
17. Write an essay on Preparative ultracentrifuge.
18. Write an account on SDS-PAGE.
19. Discuss the principle, procedure and applications of Bio-affinity chromatography.
20. Explain the principle and working mechanism of PCR. Add a note on its applications.

(For candidates admitted from 2016-2017 onwards) **P16BC12**

M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

Biochemistry

ANALYTICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Explain how electrodes are used in pH measurements?
2. Comment on titration curves?
3. List out the application of affinity chromatography?
4. Explain GLC.
5. What is half-life?
6. Explain Ultra centrifugation.
7. What is Slab gel electrophoresis?
8. Explain 2D – PAGE
9. Explain absorption spectrum.
10. Explain XRD.

PART B – (5x5=25)

Answer All Questions.

11. (a) Discuss about the purification of bio-components.

(Or)

(b) Explain oxygen electrode and its application.

12. (a) Distinguish between reverse phase chromatography and normal phase chromatography.

(or)

(b) Write short notes on HPLC.

13. (a) Give short notes on the principle and applications of Scintillation Counter.

(or)

(b) What is radioactivity? Give its application on biomedical sciences.

14. (a) List out the factors influencing electrophoretic mobility.

(Or)

(b) Explain capillary electrophoresis with a neat diagram.

15. (a) Enumerate the principle, instrumentation and application luminometry.

(Or)

(b) Brief on : (i) CD, (ii) ORD and (iii) ESR

PART C – (3x10=30)

Answer any THREE questions.

16. Describe the methods for lysis of microbial cell sub-cellular fractionation.
17. Explain (i) Adsorption chromatography and (ii) Partition chromatography with a neat diagram.
18. Write in detail about isotopes and their use in biological studies.
19. Narrate on different types of blotting techniques with suitable diagram.
20. Discuss MALDI-TOF in detail. List out its applications.

P 8 BC 2

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Bio-Chemistry

BIO – ANALYTICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. What is meant by absorption spectrum?
2. Comment on the application of LASER technique in Spectroscopy.
3. Define: Sedimentation co-efficient.
4. What is radiolabeling?
5. Comment on 2-D Phage technique.
6. What is RFLP technique and its application.
7. Comment the principle of 'Affinity Chromatography'?
8. How does the covalent chromatography differ from dye-ligand chromatography?
9. Sate *in-situ* PCR principle.
10. Write down the applications of 'Mutagenicity testing'

PART B – (5 × 5=25)

Answer ALL Questions.

11. (a) Bring-out the instrumentation method of Nephelometry. (or)
    (b) Give a concise account on the working principle of Flame Photometry.
12. (a) Briefly explain the preparative ultracentrifuge technique. (or)
    (b) Write a brief note on the radioisotopes applications in biology.
13. (a) Write down the protocol on the preparation for gradient gel.(or)
    (b) Comment on Western blot technique.
14. (a) Describe the principle of 'Molecular Exclusion Chromatography'. (or)
    (b) Elucidate the principle and applications of the 'Affinity Chromatography'.
15. (a) What is quantitative PCR? Explain the method briefly. (or)
    (b) Describe briefly on 'DNA foot printing' technique.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Write an essay on the basic and working principle of luminometry and its applications
17. Write down the protocol of determining the sub-cellular fractions and the determination of relative molecular mass.
18. Give a detailed account on the gel electrophoresis method and its applications.
19. Discuss the varying features of performing column chromatography.
20. Elaborately comment on Comet assay done in oncogenes and anti-oncogenes monitoring.

P8BC4

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry

CELL BIOLOGY AND PHYSIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Define integrins.
2. What do you mean by laminin?
3. Define phagocytosis.
4. What is the significance of importins?
5. What do you mean by leukopoiesis?
6. Write the role of heparin.
7. Mention the significance of loop of Henley.
8. What are lipoproteins?
9. Mention the role of myosin filaments.
10. What does the serotonin do?

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Describe the organization of epithelium.

(or)

(b) Discuss about the extra cellular matrix of epithelial and nonepithelial tissues.

12. (a) Differentiate between apoptosis and necrosis.

(or)

(b) Explain the different types of diffusion.

13. (a) Write a brief note on the function of various anticoagulants.

(or)

(b) Briefly discuss the pathology of hemolytic anemia.

14. (a) Write a short note on how the digestion, absorption and metabolism of proteins takes place.

(or)

(b) Discuss the functions of saliva.

15. (a) Structure of axon – longest axon – I m, internal structure of axon – structure of non myelinated nerve fiber, structure of myelinated nerve fiber.

(or)

(b) Elaborate on the steps involved in the propagation of nerve action potential.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Write an essay on cell junctions.
17. What are the various phases of cell cycle? Explain in detail.
18. Discuss the properties, functions and separation of plasma proteins.
19. Describe the structures present in sarcoplasm.
20. Elaborate on the structure of nephron.

P8BC4

M.Sc Degree Examination, April 2015.

Biochemistry

CELL BIOLOGY AND PHYSIOLOGY

Time :Three hours **Maximum Hours: 75 marks**

Part A – (10X2=20)

Answer ALL questions.

1. Mention the role of tubulins
2. List the types of tissues
3. Mention the role of cyclins
4. What are porins?
5. Write the types of variations in shape of RBCs
6. Define fibrinolysis
7. What are carboxypeptidases?
8. What is choleretics?
9. Write the importance of dentrites.
10. Define neuromuscular junction.

PART B – (5X5=25)

Answer ALL question

11. (a) Discuss about Tight Junctions (OR)
    (b) Give a short account on cell adhesion molecules.
12. (a) Differentiate between endocytosis and exocytosis. (OR)
    (b) Write a brief note on the secondary active transport.
13. (a) Briefly write the clinical significance of plasma proteins.(OR)
    (b) Discuss the functions of WBCs
14. (a) Give a short account on the digestion of lipids (OR)
    (b) Explain he regulation of gastric secretion
15. (a) Describe the structure of actin molecules (OR)
    (b) Write a short note on the types neurotransmitters their mode of action and site of secretion.

PART C – (10X3=30)

Answer any THREE questions

16. Elaborate on the types and organization of extracellular matrix components.
17. Give a detailed account on the process of apoptosis and necrosis.
18. Describe the classification of anaemia.
19. Write an essay on the steps involved in the formation of urine.
20. How does the electrical potentials take place in cardiac muscles? Explain.

P8BC4

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2015

Biochemistry

CELL BIOLOGY AND PHYSIOLOGY

Time : Three hours **Maximum : 75 marks**

PART A– (10 × 2 = 20)

Answer All Questions.

1. Differentiate between columnar epithelial cells and glandular epithelial cells.
2. Enumerate the functions of glucosamino glycans.
3. Mention the importance of importing.
4. Define the term 'Apoptosis'
5. Bring out the importance of bile in lip digestion
6. What is meant by CSF?
7. Mention the function of ankyrin.
8. 'Blood Coagulation' is a cascade phenomenon – Substantiate.
9. Distinguish between action potential and resting potential.
10. What do you mean by NMJ?

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Bring out the basic differences between extra cellular matrix of epithelial and non – epithelial tissues.

    (or)

    (b) 'Integrin is acell adhesion molecule' – substantiate.

12. (a) Analyse various phases of cell cycle.

    (or)

    (b) Describe the structure and functions of porins.

13. (a) Evaluate the causes and consequences of anemia.

    (or)

    (b) Explain the formation and destruction of RBC.

14. (a) Give an account of the regulation of saliva Selection.

    (Or)

    (b) Enumerate the enzymes seen in Pancreatic Juice and their role in digestion.

15. (a) Write a critical account on Duchenne Muscular Dystrophy.

    (Or)

    (b) Analyse the source of energy for muscular contraction.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. 'Cell junctions are interconnections of adjacent cells through plasma membrane' – Substantiate.
17. Analyze various types of transport mechanism that occur across cell membrane.
18. Write an essay on the composition and functions of blood.
19. Explain the ultra-structure of nephron with an illustration.
20. Discuss the events that occur during synaptic transmission.

P16BC14

(For candidates admitted from 2016-2017 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

Biochemistry

CELL BIOLOGY AND PHYSIOLOGY

Time : Three hours **Maximum : 75 marks**

PART A– (10X2=20)

Answer All Questions.

1. Define : totipotent, pluripotent and synovial membranes.
2. Comment on the role of 'Periosteum'.
3. Explain about a quiescence state of cell.
4. Correlate apoptosis and necrosis. Give a two example for each.
5. Write about a peripheral blood mononuclear cells and types.
6. Describe about a glycophorin and serine protease, its role.
7. How to analysis CSF test, symptoms and name the causes of CSF disorder?
8. What is meant by 'hyperphosphatemia' and its symptoms?
9. Write a short note on GABA receptors and its functions.
10. Explain the term DMD and BMD from diagnose to therapy.

PART B – (5x5=25)

Answer All Questions.

11. (a) How to classify the epithelium cells and how its functionally involved? (OR)
(b) Give a brief note on CAMs and theirs properties on inflammation.
12.(a) Bring out the process involved in cell cyclic phase.(OR)
(b) Explain the process involved in CDK and non-CDK activity.
13.(a) Discuss the formation of haemoglobin structure and its functions.(OR)
(b) Comment on the role and clinical significance or diagnosis of Creative Protein (CRP).
14.(a) Describe the anatomy of lymph-composition and functions.(OR)
(b) Write a role of pepsin enzymes in nucleic acid digestion.
15.(a) How skeletal muscle gets contraction and relaxation? (OR)
(b) Define Adenosine Triphosphate (ATP) and explain the steps involved in production for energy process.

PART C – (3x10=30)

Answer any THREE questions.

16. Write a detailed note on extra cellular matrix structure components, mechanism and role of ECMs.
17. Discuss the process of membrane transports with proper structure and its applications.
18. Explain the mechanism of haematopoiesis its structure formation and function.
19. How to excrete and expel a water-soluble organic compound CO $(NH_2)_2$ formed by the metabolism of proteins and excreted in our human body?
20. Give an account on neurotransmitters types and explain the mechanism of Neurotransmission.

P 16 BC 14

(For candidates admitted from 2016-2017 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Biochemistry

CELL BIOLOGY AND PHYSIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)Answer ALL Questions.

1. Comments the term 'Hyaluronan' and 'Laminadensa'
2. Explain the role of Glycosaminoglycans in skin and muscle.
3. Discuss why phospholipids are amphipathic molecules.
4. What do you mean by CDKs inhibitors, how targets cancer cells?
5. How to differ plasma and serum from blood and pH of blood?
6. If your blood doesn't have enough amounts of platelet means, what will happen? Give a solution for it.
7. Bring out a role of bile in digestion, give two examples.
8. Anaerobic Metabolism Vs Aerobic Metabolism.
9. Explain the capacitative Ca^{2+}entry (CCE) pathway.
10. Beta oxidation and fatty acid.

PART B – (5 × 5=25)Answer ALL Questions.

11. (a) Give a brief account on Occluding junctions.(or)
    (b) How Epithelial tissue covers the body structure and gives it's a functions?
12. (a) Describe inter and intra membrane lipid transport in Eukaryotes. (or)
    (b) Explain Microbe-Host Interactions: Structure and Role of Gram-Negative Bacterial Porins.
13. (a) How RBCs carry a O_2molecules into blood and supply to body organs? (or)
    (b) What is meant by Coumarin and explain the role?
14. (a) Give the structure of nephron and glomerular, its function. (or)
    (b) Write on Hypochlorhydria and its clinical importance.
15. (a) Explain the structure and function of neurons. (or)
    (b) What are muscle proteins? Explain any two types.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Give a detailed account on CAMs; explain it in different classes and mechanism.
17. a) Explain the mechanism of cell cycle regulation. b) Difference between prokaryotic and eukaryotic cell division.
18. Explain the process of erythropoiesis and its regulations. Where the destruction its takes place and explain the mechanism?
19. How digestion takes place in our body, explain how macro and micro molecules converts into energy forms?
20. Write an easy on Cardiomyopathy? Explain – types, causes, symptoms and treatments.

P8BC1

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry

CHEMISTRY OF BIOMOLECULES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Comment on the term 'Ramachandran Plot'
2. How does α - helix differ from β - pleated sheet in protein configuration?
3. 'Proteins have minimum of solubility at isoelectric point' – Substantiate.
4. What is meant by β-α-β motif?
5. 'Hexoses are the primary building blocks of oligosaccharides' – Reason out.
6. Comment on the biological significance of proteoglycans.
7. Differentiate between saponifiable and non-saponifiable lipids.
8. What are thromboxanes? Mention their signicance.
9. Discuss on importance of Iodine.
10. Distinguish between purine and pyrimidine bases.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Write an outline classification of proteins.

(or)

(b) Discuss the phenomenon of denaturation and renaturation with reference to proteins.

12. (a) Explain the structure of myoglobin.

(or)

(b) 'Haemoglobin' is an allosteric oxygen binding protein' – Substantiate.

13. (a) Explain the process of bacterial cell wall synthesis from polysaccharides.

(or)

(b) Discuss the structure and functions of any one homopolysaccharide you have studied.

14. (a) Bring out the structure and functions of lecithin and cephalin.

(or)

(b) Enumerate the biological significance of fat.

15. (a) Explain any two properties of nucleic acids.

(or)

(b) Analyse various types of RNA and their biological role.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Analyse the sequential steps involved in the chemical synthesis of peptides and polypeptides by Merrifield method.
17. Discuss any two methods adopted for protein purification.
18. 'O-linked oligosaccharides are responsible for different blood group types' - Substantiate.
19. Write an essay on the chemistry, types and biological significance of steroids.
20. Write a detailed account on the properties and functions of fat soluble vitamins.

P8BC1

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2015

Biochemistry

CHEMISTRY OF BIOMOLECULES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Mention the bonds of tertiary structure of proteins.
2. What is meant by β-pleated sheet?
3. What is transport protein? Give an example.
4. Comment on loophelix.
5. Distinguish between O-linked and N-linked oligosaccharides.
6. Comment on proteoglycans.
7. Differentiate nucleoside from nucleotide.
8. Mention the types of RNA.
9. What are Leucotrienes?
10. Comment on Ergosterol.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) How are proteins classified?

    (or)

    (b) Illustrate Pauling and Corey model for fibrous proteins.
12. (a) Highlight the method involved in purification of proteins.

    (or)

    (b) Discuss the super secondary structure of proteins.
13. (a) Describe the structure and biological importance of Glycoproteins.

    (Or)

    (bBring out the role of polysaccharides in the composition of bacterial cell wall.
14. (a) How are fatty acids acting as inflammatory mediators?

    (or)

    (b) Write notes on cholesterol.
15. (a) Discuss the triple and quadruple structural of DNA?

    (or)

    (b) Explain the properties of DNA.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Critically analyse the orders of protein structure.
17. Write an account on Haemoglobin and Myoglobin.
18. Describe the structure and biological functions of Homopolysaccharides.
19. Explain the following:
    (a) Types of fatty acids.
    (b) Sphingolipids.
20. Write an essay on vitamins.

(For candidates admitted from 2016-2017 onwards) **P16BC11**

M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

Biochemistry

CHEMISTRY OF BIOMOLECULES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Give the molecular formula and write the molecular structure of glucose.
2. Give a short note on osazone formation.
3. Write an account on non-standard amino acids.
4. Define Ramachandran plot. Give an example of one amino acid which is prohibited by Ramachandran plot.
5. Describe the structure of hemoglobin.
6. Enumerate major plasma proteins.
7. Discuss the biological importance of amphipathic lipids.
8. What are phospholipids?
9. Name different RNAs and give their structure.
10. Give a short note on cot curve of DNA melting.

PART B – (5x5=25)

Answer All Questions.

11. (a) Give a note on cellulose. (OR)
    (b) Give a brief note on hyaluronic acid.
12. (a) Discuss about functional classifications of proteins. (OR)
    (b) Discuss the importance of biologically active peptide.
13. (a) Define porphyrins? Give a note on porphyrias.(OR)
    (b) Describe tertiary structure of protein.
14. (a) Explain the regulation of cholesterol biosynthesis.(OR)
    (b) Distinguish between essential and non-essential fatty acids.
15. (a) Write an account of structure, function and nomenclature of nucleotides.(OR)
    (b) Give a note on chemical method of DNA sequencing.

PART C – (3x10=30)

Answer any THREE questions.

16. Give a detailed note on heteropolysaccharide.
17. Classify the amino acids based on the structure and add a note on schematic representation of the same.
18. Explain the methods of isolation and characterization of proteins.
19. Discuss about structural lipids in membranes.
20. Give a note on the following:
    (a) *de novo* synthesis of purine
    (b) Inhibitors of purine synthesis
    (c) Disorders of purine metabolism.

P 16 BC 11

(For candidates admitted from 2016-2017 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Bio-Chemistry

CHEMISTRY OF BIOMOLECULES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Comment on the term 'Enantiomers'.
2. Give a short note on antifreeze proteins.
3. Explain simple proteins? Give an example.
4. Give an account on selenocysteine.
5. What do you mean by helix- loop- helix motif?
6. Discuss the clinical significance of methemoglobin.
7. What are the types of phospholipids?
8. Enumerate the role of bile salts in lipid absorption.
9. Name any two nucleotide analogs with their pharmacological applications.
10. RNA is not obeying Chargaff's rule – justify.

PART B – (5 × 5=25)

Answer ALL Questions.

11. (a) Discuss the structure and functions of three biochemically important disaccharides.(or)
    (b) Give a note on composition, tissue distribution and functions of any two glycoproteins.
12. (a) Discuss about Ramachandran Plot. (or)
    (b) Give a note on the bonds responsible for protein structure.
13. (a) Write an account of hemoglobinopathies with special reference to sickle-cell anemia. (or)
    (b) Discuss about the methods of protein purification.
14. (a) Discuss the role of prostaglandins in the regulation blood pressure. (or)
    (b) Discuss the saturated and unsaturated fatty acids of biological importance, along with their structures.
15. (a) Give a critical account of conformational variants of DNA. (or)
    (b) Classify the RNA types. Give its biological role.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Give a detailed note on polysaccharides.
17. Give a detailed account on the methods of protein sequencing.
18. Write an essay on the structure and biological importance of myoglobin.
19. Write an essay on the structure and functions of cholesterol and its biological significance.
20. Discuss the chemical and enzymatic methods of DNA sequencing.

P8BC3

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry

ENZYMES AND ENZYME TECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What are ribozymes?
2. What is TPCK and TLCK?
3. Define turnover number.
4. What does positive cooperativity occur?
5. What is binding energy?
6. What are the substrate analogs? Give examples.
7. Name the coenzymes which are involved in one carbon transfer reactions.
8. What is feedback inhibition?
9. Mention the role of lipase and glucose isomerase in industry.
10. List the enzymes present in the commercial preparation of pectin hydrolyzing enzyme.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Brief on fatty acid and synthase complex.(OR)
    (b) Write short notes on DNA enzymes.
12. (a) Describe Line-Weaver Burk plot.(OR)
    (b) What happens to Michaelis – Menten equation when
        i) S>> Km
        ii) S>>Km
        iii) V=1/2 V_{max}
13. (a) Brief on the clinical uses of competitive inhibition with an example.(OR)
    (b) Explain covalent catalysis with an example.
14. (a) Write a short notes on flavoprotein enzymes.(OR)
    (b) Brief on enzyme degradation.
15. (a) What are the disadvantages of using enzymes in industries?(OR)
    (b) Describe the role of proteases in cheese making.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Describe the salient feature of active site.
17. Discuss the kinetics of bisubstrate enzyme reactions.
18. Describe the different types on reversible inhibitions.
19. Briefly describe a method for immobilization of an enzyme. Write a note on the applications of immobilized enzymes.
20. What are extremozymes? How are they used industrially?

P8BC3

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, April 2015

Biochemistry

ENZYMES AND ENZYME TECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What is meant by allosteric site?
2. Comment on ribozymes.
3. Define activation energy.
4. What is the function of Rnase?
5. What are coenzymes?
6. Distinguish between induction and degradation.
7. Define steady state enzyme kinetics.
8. What are zymogens?
9. Give one application of ELISA.
10. Distinguish between a amylase and β amylase.

PART B – (5x5=25)

Answer All Questions.

11. (a) Describe a method of investigating active site structure.

(or)

(a) Give a brief account of DNA enzymes.

12. (a) Explain the significance of line weaver – Burk plot and Eadie – Hofstee plot.

(or)

(b) Outline the kinetics of allosteric enzymes with the help of a model.

13. (a) Give an account of the mechanism of chymotrypsin action.

(or)

(b) Explain the types of DNA polymerases.

14. (a) Describe the role of Isoenzymes and their significance.

(Or)

(b) Give an account of feedback inhibition of enzymes.

15. (a) Write an account on enzyme biosensors.

(Or)

(b) Bring out the role of proteolytic enzymes.

PART C – (3x10=30)

Answer any THREE questions.

16. Write an essay on chemical induced enzyme modification.
17. Derive the Michaelis – menten's equation.
18. Discuss the mechanism of enzyme action.
19. Give an account on enzyme immobilization and applications.
20. Write an essay on Enzymes of clinical importance.

(For candidates admitted from 2016-2017 onwards) **P16BC13**

M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

Biochemistry

ENZYMES AND ENZYME TECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What are enzymes? Why are they called biocatalyst?
2. How SDS-PAGE can be used to determine purity of an enzyme?
3. What do you understand by zymogens?
4. Explain sequential feedback inhibition with example.
5. Define $V_{max.}$
6. Give two methods of enzyme purification by solubility.
7. Differentiate between coenzymes and cofactors with example.
8. What are multienzyme complexes? Explain with suitable examples.
9. Define k_m and V_{max}. How can they be measured?
10. What do you mean by optimum pH and optimum temperature of an enzyme?

PART B – (5x5=25)

Answer All Questions.

11. (a) Give brief notes on the use of substrates analogues for the determination of active site of enzymes.(or)
    (b) Explain enzyme catalysis in solution.
12. (a) Explain the competitive inhibition of enzymes with an example. (or)
    (b) Mention the factors influencing enzyme kinetics.
13. (a) How will you determine the 3-D structure of enzyme active sites?(or)
    (b) Explain general acid-base catalysis.
14. (a) Discuss the different factors effecting the catalytic activity of enzymes.(Or)
    (b) Explain the applications of enzymes in diagnostic reagents with examples.
15. (a) Explain different methods used for extraction of enzymes.(Or)
    (b) Define immobilization. Write note on the methods adopted for enzyme immobilization.

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the organization of mitochondrial respiratory chain. Add a note on inhibitors of oxidative phosphorylation.
17. Write notes on the followings :
    (a) Allosteric enzymes
    (b) Product inhibition.
18. Define enzyme inhibition. Discuss in detail about irreversible inhibitors and reversible inhibitors involved in enzyme inhibition.
19. Describe the theories of enzyme-substrate complex formation.
20. Give a detailed account on the industrial application of enzymes.

P 16 BC 13

(For candidates admitted from 2016-2017 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Bio-Chemistry

ENZYMES AND ENZYME TECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Define Katal and International Unit.
2. What is the significance of active site in enzymatic reactions?
3. Define activation energy.
4. Write the general properties of enzymes.
5. What are the membrane bound enzymes?
6. Mention the disadvantages of using Line-Weaver Burk plot?
7. Define induced fit hypothesis.
8. Define the terms apoenzyme and 'coenzyme'.
9. Give two applications of immobilized enzymes.
10. What is enzyme encapsulation? Give examples.

PART B – (5 × 5=25)

Answer ALL Questions.

11. (a) Describe in detail about the methods for enzyme isolation.(or)
    (b) Describe the mechanism of reaction catalysed by chymotrypsin.
12. (a) Distinguish between non-competitive and uncompetitive inhibition with the help of Line –weaver Burk plot. (or)
    (b) Outline the graphical determination inhibitors.
13. (a) Describe the roll of coenzymes in enzymatic catalysis. (or)
    (b) Write a note on enzyme specificity.
14. (a) Derive Michaelis Menten equation. Add a note on the significance of Km value. (or)
    (b) Describe the reaction mechanisms of bisubstrate reaction.
15. (a) Outline the industrial application of enzymes. (or)
    (b) How the covalent modification of enzymes regulates metabolic pathways?

PART C – (3 × 10=30)

Answer any THREE questions.

16. Describe the steps for the purification of enzymes.
17. What are the different factors affecting velocity of enzyme catalyzed reactions?
18. Explain the role of multienzyme complexes in the regulation of metabolic pathways.
19. Describe the kinetics of allosteric enzymes.
20. Discuss the clinical and therapeutic importance of enzymes.

P8BCE1

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2015

Biochemistry

BIOSTATISTICS

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Mention the types of matrices.
2. What is meant by rank of matrix?
3. Differentiate caption from stub.
4. Comment on pictograms.
5. What is meant by mode?
6. What are the measures of dispersion?
7. Define standard error.
8. How is random sampling done?
9. Comment on Null hypothesis.
10. State the uses of 't'-test.

PART B – (5x5=25)

Answer All Questions by choosing either (a) or (b).

11. (a) Solve by matrix inversion method: $x + y = 3, 2x + 3y = 8$. (OR)

(b) If A = $\begin{bmatrix} -1 & 2 \\ 1 & -4 \end{bmatrix}$, verify the result A(adj A) = (adj A)A= $|A|I_2$.

12. (a) Explain the methods of data collection.

(or)

(b) Give an account of classification of data.

13. (a) Discuss sampling distribution.

(or)

(b) Write notes on sample statistics.

14. (a) Describe different methods of studying correlation.

(Or)

(b) Explain the measures of central tendency and their uses.

15. (a) 10 fishes were treated with a special drug for certain period and the sum of squares of the sample values from the sample mean weigh of 70.4 Ibs and in other sample of 12 fishers treated with normal drug. It was 85.3 Ibs would you conclude that special drug really promoted the weights. (Take value of 'F' for V_1=10 and V_2=12 is 4.36).

(Or)

(b) Write notes on Chi-square test.

PART C – (3x10=30)

Answer any THREE questions.

16. Show that the adjointof A = $\begin{bmatrix} -4 & -3 & -3 \\ 1 & 0 & 1 \\ 4 & 4 & 3 \end{bmatrix}$ is A itself

17. Discuss the diagrammatic representation of data with the help of suitable illustrations
18 Write an account on simple linear regression
19. Describe the methods of sampling
20. Write an essay on one way ANOVA.

P8BCE1

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

Biochemistry – Elective

BIOSTATISTICS

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Comment on determinant.
2. What are the applications of matrix?
3. What do you mean by data? And mention the three types of data.
4. What are the sources of secondary data?
5. State the three methods of standard deviation in discrete series.
6. Define kurtosis. What is the measuring kurtosis?
7. Give an example where systematic sampling is used.
8. Point out the tests for large sample test.
9. Comment on chi-square test.
10. Define students 't' – statistics.

PART B – (5x5=25)

Answer All Questions, choosing either (a) or (b).

11. (a) Using matrix method, solve the following system of linear equations :
$2x - y = 4; 2y + z = 5; z + 2x = 7$(Or)
(b) Give an account of rank of matrix and its properties.
12. (a) Describe various types of classification. (or)
(b) Bring out the significance and rules for making a diagram.
13. (a) Specify various types of regression and add & note on analysis methods. (or)
(b) Find the co-efficient of correlation from the following data :
X : 64 65 66 67 68 69 70
Y : 66 67 65 68 70 68 72
14. (a) Write short notes on standard error and its uses. (Or)
(b) Write the variance of difference between two proportion and its test of significance.
15. (a) How will you calculate 'F' test for testing the ratio of variance? (Or)
(b) Give an account x^2 test of goodness of fit.

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the following
(a) Singular and non – singular matrix
(b) Inverse of matrix.
17. Overview the primary and secondary data collection methods.
18. Calculate mean deviation from mean and median for the following data : 100, 150, 200, 250, 360, 490, 500, 600 and 671 also calculate co-efficient of mean deviation.
19. Discuss the methods for selection of sampling along with their merits and demerits.
20. Describe the test procedure of one-way ANOVA.

P8BCE1

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2016

Biochemistry

BIOSTATISTICS

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Define matrix and life order?
2. Write any two properties of determinants.
3. Differentiate primary from secondary data.
4. Comment on decide.
5. What do you understand by skewness? What are the various measures of skewness?
6. Define karl person's co-efficient of correlation.
7. What are the limitations of sampling?
8. When is sample considered as large of small sample?
9. Relate the terms null and alternate hypothesis.
10. Comment on regression and write down the two regression equation.

PART B – (5 × 5 = 25)

Answer All Questions Choosing either (a) or (b).

11. (a) Enlist any five applications of matrix.

(or)

(b) Give an account on linear equations.

12. (a) How will you prepare a table? And mention the three types of tabulation.

(or)

(b) Enlist the merits and demerits of primary data collection.

13. (a) Compute standard deviation from the following data.

Marks	10	20	30	40	50	60
No of students	8	12	20	10	7	3

(or)

(b) Give an account on quartile and co-efficient quartile deviation with its merits and demerits.

14. (a) Elaborate the different methods of sampling.

(or)

(b) Enumerate the text procedure for testing the test of significance for proportion.

15. (a) Explain the test procedure to test the significance of mean in case of small samples.

(or)

(b) Write the ANOVA table for one-way classification.

PART C – (3 × 10 = 30)Answer any THREE questions.

16. Elaborate different types of matrix with suitable example.
17. Illustrate various types of graphs.
18. Classify different types of correlation and mention any two uses.
19. State the principles of sampling and its advantages limitations.
20. Summarize the properties and conditions for applying chi-square test.

P 8 BCE 1

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Bio-chemistry - Elective

BIOSTATISTICS

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Describe the scalar matrix with an example.
2. What is a singular matrix? Give a example.
3. Differentiate the primary data from secondary data.
4. What is known as a stub in a table?
5. Write down the formula to find out the median for a odd number series.
6. What is skewness and how it is calculated?
7. How cluster sampling is done?
8. Comment on sample size determination.
9. Write down the basic principle of student's t test.
10. What do you meant by 'Goodness of Fit' test?

PART B – (5 × 5=25)

Answer ALL Questions.

11. a) Write a brief account of inverse matrix. (or)
    b) Explain how matrix forms the solving method of linear equations.
12. a) Categorize the data types. (or)
    b) Summarize the data representation using tabulation method.
13. a) Explain the method of a arithmetic mean calculation and its merits. (or)
    b) Give a concise account on the regression equation.
14. a) Discuss briefly on the importance of random sampling in biology. (or)
    b) Describe the principle and method of calculating standard error.
15. a) Examine the concept of correlation coefficient. (or)
    b) A garden pea plant produces 30 fruits with three colours of 12 white, 3 green and 15 purple. Determine the chi-square value from the above data and interpret your results (Chi-square table value for $p<0.05$, $n-1 = 2$ is 0.10)

PART C – (3 × 10=30)

Answer any THREE questions.

16. Write an essay on Matrices.
17. Discuss in detail on the graphical and diagrammatic representation of data.
18. Explain the details of correlation methods.
19. Examine the concept 'Test of Significance'
20. Bring – out the details on F Test.

P8BC6

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry

METABOLISM AND REGULATION

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Define entropy.
2. What is ATP?
3. What is gluconeogenesis?
4. What is multienzyme complex?
5. What are fatty acids?
6. Define lipoprotein.
7. What are essential amino acids?
8. What is transamination?
9. Define NIDDM.
10. What aerobic endurance?

PART B – (5x5=25)

Answer All Questions.

11. (a) Explain the inhibitors of oxidative phosphorylation.

(or)

(b) Write a note on ATP ase mechanism of action.

12. (a) Write an account on citric acid cycle.

(or)

(b) Explain the regulation of glycogen metabolism.

13. (a) Write a note on the formation of ammonia.

(or)

(b) Explain the metabolism of triacylglycerol during stress.

14. (a) Write a note on regulation of ureogenesis.

(Or)

(b) Write a note on orotic aciduria.

15. (a) What are the key junctions in pyruvate metabolism?

(Or)

(b) Explain the role of hormonal stress during lactation.

PART C – (3x10=30)

Answer any THREE questions.

16. Explain glycerophosphate shuttle.
17. What is glycolysis? Explain the different phases and mention the key enzymes.
18. Mention the role of carnitine cycle in regulation fatty acid metabolism.
19. What is phenylketonuria? Explain.
20. Write in brief the metabolic profile of liver.

P8BC6

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, April 2015

Biochemistry

METABOLISM AND REGULATION

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What are Redox reactions?
2. What are uncouplers?
3. What are anaplerotic reactions?
4. What are reversible and covalent modifications?
5. Define isoprenes.
6. What is a triacyl glycol?
7. Define alkaptonuria.
8. Comment on hyperuricemia.
9. List out the market enzymes of liver metabolism.
10. How is acetyl CoA linked into hormonal regulation?

PART B – (5x5=25)

Answer All Questions, Choosing either (a) or (b)

11. (a) Explain the structure and function of ATP ase.

(or)

(b) Describe the mechanism of oxidative phosphorylation.

12. (a) Describe pentose phosphate pathway.

(or)

(b) Explain the Glycolytic reactions.

13. (a) How is cholesterol synthesized?

(or)

(b) What are effects of diet on fatty acid biosynthesis?

14. (a) Give an account of over view of catabolism of amino acids.

(Or)

(b) Explain the disorders of amino acid metabolism with an example.

15. (a) Explain the risk factors of obesity.

(Or)

(b) Give an account of hormonal control of IDDM.

PART C – (3x10=30)

Answer any THREE questions.

16. Describe the structure and function of malate or glycerophosphate shuttle in mitochondria.
17. Explain citric acid cycle.
18. Explain the process of Ketogenesis and its control.
19. Describe urea cycle and regulation of ureogenesis.
20. Give an account of metabolic profile of adipose tissue.

P8BC6

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2015

Biochemistry

METABOLISM AND REGULATION

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What is entropy?
2. Define Redox Potential
3. What do you mean by substance level phosphorylation?
4. Define feedback inhibition.
5. What are the precursors of fatty acid?
6. Define Ketogenesis?
7. What is *denovo* pathway?
8. Define Oxidative deamination.
9. What are the etiological factors of obesity?
10. Define Lactation.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Describe the components of respiratory chain.

(or)

(b) How do inhibitors and uncouplers affect oxidative phosphorylation?

12. (a) How are glycogen metabolized?

(or)

(b) How is glycolysis regulated?

13. (a) How are triacylglycerols synthesized?

(or)

(b) Discuss the role carnitine in oxidation of fatty acids.

14. (a) Give the classification of amino acids based on the precursors of their synthesis.

(Or)

(b) How are pyrimidinescatabolized?

15. (a) What is anaerobic endurance? How it is hormonally controlled?

(Or)

(b) Give an account of metabolic profile of liver metabolism.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Give an account of phosphoryl group transfers and ATP formations metabolism
17. Describe the reactions of Glycolysis.
18. Describe the pathway of cholesterol biosynthesis.
19. Explain the significance of Glutamate dehydrogenase in catabolism of amino acids.
20. Outline the key junctions and branching points of glucose – 6 – phosphate, pyruvate and acetyl CoA metabolism.

P8BC6

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2016

Biochemistry

METABOLISM AND REGULATION

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What are uncouplers?
2. Define redox reactions.
3. What are anaplerotic reactions?
4. Define co-ordinate regulation.
5. Comment on carnitine.
6. What is malonyl CoA?
7. Define transamination.
8. Hyperuricemia.
9. List out the marker enzymes of liver.
10. IDDM.

PART B – (5 × 5 = 25)

Answer All Questions

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

(or)

(b) Bring out the enzymes involved in Redox reactions.

12. (a) Comment on the Glycogen storage diseases.

(or)

(b) Explain the pentose – phosphate pathway.

13. (a) How is acetyl CoA carboxylase controlled?

(or)

(b) Bring out the role of carnitine in oxidation of fatty acids.

14. (a) Describe the *De novo* pathway of nucleotides.

(or)

(b) Explain transamination and deamination reactions.

15. (a) Give an account of Hormonal state of IDDM.

(or)

(b) Describe the hormonal state of obesity.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Describe the various components of Electron Transport chain.
17. Explain TCA cycle.
18. Describe Beta-oxidations of fatty acids.
19. Give an overview of biosynthesis of nonessential amino acids.
20. Give an account of metabolic profile of adipose tissue.

P 16 BC 21

(For candidates admitted from 2016-2017 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Biochemistry

METABOLISM AND REGULATION

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Define Gibbs free energy.
2. What is mitochondrial uncoupler?
3. What is gluconeogenesis?
4. Name the key enzymes of glycolysis.
5. List the importance of fatty acid – binding protein.
6. Which is the rate limiting step in cholesterol biosynthesis?
7. Define deamination.
8. Explain salvage pathway.
9. Importance of adipose tissue as metabolic reservoir – Justify.
10. What is the interlink between lipid metabolism and lactation?

PART B – (5 × 5=25)

Answer ALL Questions.

11. (a)Explain the oxidative phosphorylation. (or)
    (b) Write short notes on electron transport chain in mitochondria.
12. (a) Give an account on glycogenolysis and its importance. (or)
    (b) Explain the metabolic cycle of TCA.
13. (a) Write notes on the biosynthesis of triacylglycerol. (or)
    (b) Explain ketogenesis and its control.
14. (a) Give an account on urea cycle in ureogenesis. (or)
    (b) Write the importance of Glutamate dehydrogenase.
15. (a) What are the key junction points in metabolism? How it interlinked? (or)
    (b) Explore the hormonal regulation of fuel metabolism.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Enumerate chemiosmotic theory and the proton motive force.
17. Explain in detail about pentose phosphate pathway in carbohydrate metabolism.
18. Write an account on β – oxidation of fatty acids and its importance.
19. Explain the process of purine biosynthesis.
20. Describe metabolic profile of brain and kidney as fuel reservoir.

P8BC8

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2015

Biochemistry

MICROBIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

Write short note on the following

1. Peptidoglycan
2. Flagella.
3. Continuous culture
4. Lag phase.
5. Chemoautotroph.
6. Sterilization.
7. Viroids.
8. Infection.
9. Lysogeny.
10. Antibiotics.

PART B – (5x5=25)

Answer All Questions.

11. (a) Explain the ultrastructure of bacteria.

(or)

(b) Write notes on endospores and gas vesicles.

12. (a) Give an account of methanogenic bacteria.

(or)

(b) Outline the factors affecting microbial growth.

13. (a) Describe the pure culture technique.

(or)

(b) Describe the enrichment culture technique for isolation of chemoautotrophs.

14. (a) Outline the classification of viruses.

(Or)

(b) Write note on adenoviruses.

15. (a) Distinguish between vector – borne diseases and water – borne disease with examples.

(Or)

(b) What are broad spectrum antibiotics? Give examples.

PART C – (3x10=30)

Answer any THREE questions.

16. Describe the cell wall composition of eubacteria.
17. Explain the biochemistry of nitrogen fixation.
18. Write notes on microbial nutrition and culture media.
19. Give an account of Lytic and lysogenic pathway.
20. Write an essay on sexually transmitted diseases.

P8BC8

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2015

Biochemistry

MICROBIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

Write short note on the following :

1. Pili.
2. Archaebacteria.
3. Exponential phase.
4. Non-symbiotic nitrogen fixers.
5. Basal medium.
6. Wet
7. Bacteriophages
8. Prions
9. Endemic disease
10. Faecal streptococci

PART B – (5x5=25)

Answer All Questions.

11. (a) Describe the characteristic features of purple green bacteria.

(or)

(b) Explain the features of Mycoplasma.

12. (a) How you will you account for the synchronous growth?

(or)

(b) Discuss the acetogenesis.

13. (a) Explain the isolation of chemoheterotrophs.

(or)

(b) Describe the principles of microbial nutrition.

14. (a) Discuss the DNA viruses.

(Or)

(b) Describe the features of adenoviruses.

15. (a) Examine the epidemiology of any two vector borne diseases.

(Or)

(b) Analyze the epidemiology of tuberculosis.

PART C – (3x10=30)

Answer any THREE questions.

16. Describe the features of cyanobacteria.
17. Write an essay on biological nitrogen fixation.
18. Discuss the pure culture techniques.
19. Give an outline of the classification of viruses.
20. Examine the epidemiology and control measures of any two water borne diseases.

P8BC11

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2016

Biochemistry

MICROBIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Coenocytic mycelium.
2. Basal body.
3. Dark field microscope
4. Auxenic Culture
5. Grams staining
6. Synchronous Growth
7. Retro virus.
8. TMV.
9. Opportunistic infection.
10. Vectors.

PART B – (5 × 5 = 25)

Answer All Questions Choosing either (a) or (b).

11. (a) Write a note on purple and green bacteria.

    (or)

    (b) Bring out the role of gas vesicles in bacteria.
12. (a) Write a note on from oxidizing bacteria.

    (or)

    (b) Explain bacterial growth with growth curve.
13. (a) List the methods of sterilization.

    (or)

    (b) Bring out the basic principles of microbial nutrition.
14. (a) Comment on virions.

    (or)

    (b) Write a note on double stranded RNA viruses.
15. (a) Give a brief account on penicillin.

    (or)

    (b) Comment on Disease reservoirs.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Give an account on bacterial cell well structure.
17. Explain the mechanism of nitrogen metabolism.
18. Describe the enrichment culture technique used for the isolation f chemoheterotrophs and chemoheterotrophs.
19. Explain lytic cycle of viruses.
20. Write an essay on any two sexually transmitted diseases.

P 8 BC 8

(For candidates admitted from 2008-200 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Biochemistry

MICROBIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Nucleoid.
2. Sarcodina.
3. Sigmoid Curve.
4. Chemolithotrophs.
5. Surface sterilization.
6. Autoclave.
7. Prions.
8. Tumor virus.
9. Pathogenesis.
10. TB.

PART B – (5 × 5=25)

Answer ALL Questions.

11. (a) Explain the structure of bacterial flagellum. (or)
    (b) Write a note on homoacetogenic bacteria.
12. (a) Briefly explain about fermentation. (or)
    (b) List the factors that affect the bacterial growth in culture medium.
13. (a) Explain the method used for the isolation of photosynthetic microbes. (or)
    (b) Comment on spread plate technique.
14. (a) Write a brief note on Lysogeny. (or)
    (b) Explain about bacteriophages.
15. (a) Write a note on broad spectrum antibiotics. (or)
    (b) Discuss the mode of spread and precaution measures of AIDS.

PART C – (3 × 10=30)

Answer any THREE questions.

16. a) Give an account on gliding and sheathed bacteria.
    b) Endospore forming rods and Cocci.
17. Explain bacterial photosynthesis.
18. Describe the methods to identify microbes.
19. Explain the replication of adenovirus.
20. Give an account on antifungal antibiotics and their mode of action.

P8BC7

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry

MOLECULAR BIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What do you mean by chromosomal abrasion?
2. What are the main features of repressor and compressor?
3. Comment on ribozyme.
4. List the functions of RNA polymerase.
5. How might various antibiotics be used to study the process of translation?
6. What are the 'S' values of prokaryotic and Eukaryotic ribosomes? Mention their subunits and RNA molecules.
7. Distinguish between Dam and Dcm methylation.
8. What do you know about induction?
9. Comment on genomics and proteomics.
10. What is physical mapping?

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Discuss the regulatory mechanism of lac operon.

(or)

(b) Elaborate the process of transcription with neat diagrammatic representation.

12. (a) Critically analyze the post-transcriptional processing of RNA.

(or)

(b) Write short notes on RNA editing and antisense RNA.

13. (a) Highlight the importance of post – translational modification.

(or)

(b) Enlist the differences between prokaryotic and eukaryotic translation.

14. (a) Briefly explain CpG Islands and their significance.

(or)

(b) Elaborate the two classes of epigenetic mechanism.

15. (a) Give an account of various types of genomic proteomics and mention any four tools.

(or)

(b) Elucidate the importance of genome project with special reference to human genome.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Discuss different types of mutations and their effects.
17. Explain the transcriptional regulation in eukaryotes by steroid hormone.
18. Illustrate the mechanism of bacterial protein synthesis.
19. "DNA methylation is responsible for imprinting" – Justify your answer.
20. Describe the different types of marker used to construct genetic maps and state how they are scored.

P8BC7

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, April 2015

Biochemistry

MOLECULAR BIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Write any two inhibitors of DAN replication.
2. Comment on termination process in DNA replication.
3. What do you mean by catalytic RNA?
4. Distinguish between RNA polymerase I and II.
5. Differentiate positive inducible regulation from negative inducible regulation.
6. What do you know about cytosine methylation?
7. Comment on ubiquitin pathway.
8. Write a short account on imprinting.
9. What are the ethical, legal and social of human genome project?
10. Differentiate RFLD from SSLP.

PART B – (5x5=25)

Answer All Questions.

11. (a) Explain various events of replication fork.

(or)

(b) Discuss TRP Operon.

12. (a) Discuss the mechanism of transcription in eukaryotes.

(or)

(b) Give an account of phosphorylation in Stat protein.

13. (a) Write short notes on Genetic code.

(or)

(b) Critically analyze protein folding with the help of anyone model mention the significance of molecular chaperones.

14. (a) Discuss restriction modification system in prokaryotes by DNA methylation.

(Or)

(b) Elaborate the principles of gene regulation.

15. (a) Describe positional cloning.

(Or)

(b) Write an account on RAPD.

PART C – (3x10=30)

Answer any THREE questions.

16. Compare and contrast the DNA replication of prokaryotes with that of eukaryotes.
17. Explain the following:
    (b) Homeodomain
    (c) Antisense RNA and RNAT.
18. Outline the mechanism of protein synthesis in eukaryotes.
19. Discuss the epigenetic gene regulation by DNA methylation in mammals.
20. Describe the mechanism and applications of DNA Microarray.

P8BC7

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2015

Biochemistry

MOLECULAR BIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What is the role of CAP and CRP?
2. Write the function of regulatory gene and enzyme.
3. Comment on Homeodomain.
4. Bring out the significance of that protein in HIV.
5. What do you mean by signal sequence?
6. Give any four examples for chaperone.
7. Comment on CPG island.
8. What is Dam methylation?
9. What is the use of positional cloning?
10. Differentiate between structural and functional genomics.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) List the types of chromosomal aberration that can cause duplication and/ or deletion and explain how they do so.(or)
    (b) Enlist various types of DNA repair and their importance
12. (a) Elaborate the structural elements in eukaryotic RNA polymerase. (or)
    (b) Enumerate the role of activators and repressors in eukaryotic gene regulation.
13. (a) What are the basic steps in bacterial protein synthesis? Mention some inhibitors. (or)
    (b) What are the characteristics of genetic code?
14. (a) Explain the DNA methylation proteins in gene regulation.(Or)
    (b) Schematically represent the signal transduction.
15. (a) Elucidate the goals, importance and ELSI of HGP.(Or)
    (b) Describe the types and mechanism of microarray.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Explain the following:
    a) DNA replication process, b) *lac*operon concept
17. Discuss the mechanism of transcription eukaryotes.
18. Explain the process of translational modification.
19. DNA methylation is a form of epigenetic control of gene regulation – Substantiate this statement.
20. Summarize the two strategies of genome sequencing and add a note on model organism genome.

(For candidates admitted from 2016-2017 onwards) **P16BC22**

M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

Biochemistry

MOLECULAR BIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Explain frame shift mutation.
2. What is suppressor?
3. Write about the functions of RNA polymerase I.
4. Define exon.
5. Write about initiation codon.
6. What is alternative splicing?
7. What is amino and activation?
8. Define : repression.
9. What is functional genomics?
10. Define : SNP.

PART B – (5x5=25)

Answer All Questions.

11. (a) Explain : replication fork and termination of DNA replication.

(or)

(b) Define and explain different types of gene mutations.

12. (a) Describe the mechanism of eukaryotic transcription.

(or)

(b) Write a brief account on RNAi.

13. (a) Explain about the structure and functions of tRNA in protein synthesis.

(or)

(b) Explain the mechanism of protein targeting.

14. (a) Explain : upregulation and downregulation mechanism in gene expression.

(Or)

(b) Discuss about cytosine methylation.

15. (a) Describe chromosome mapping.

(Or)

(b) Write about the principle and application of RAPD.

PART C – (3x10=30)

Answer any THREE questions.

16. Write a detailed account on different types of mutations.
17. Explain the mechanism of transcriptional regulation in prokaryotes.
18. Write a detailed account on protein synthesis in eukaryotes.
19. Explain about epigenetic gene regulation in plants.
20. Define proteomics and explain its applications.

P 16 BC 22

(For candidates admitted from 2016-2017 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Biochemistry

MOLECULAR BIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. What is C-Value of Chromosomal DNA?
2. Define heterochromatin.
3. What are replication fork?
4. Describe about Autonomously Replicating Segments (ARS).
5. Define: Intron and Exon.
6. Write the types of RNA polymerase in Eukaryotes?
7. What are the types of phospholipids?
8. Describe about bZIP.
9. What are Promoter and terminator?
10. Define: apoptosis.

PART B – (5 × 5=25)Answer ALL Questions.

11. (a) Write about a histone Proteins and their functions. (or)
    (b) Write short notes on a DNA Polymerase.
12. (a) Give a brief account DNA Polymerase. (or)
    (b) Explain the types of post transcriptional modification.
13. (a) Explain the Eukaryotic RNA Polymerase – structure and function. (or)
    (b) Explain about Zinc fingers and helix loop helix.
14. (a) Discuss the Genetic code and its application. (or)
    (b) Write a short note on Ubiquitin TAG protein destruction.
15. (a) Write on tumor suppressor genes. (or)
    (b) Give a brief account on thymine-thymine dimer of repair mechanism.

PART C – (3 × 10=30).Answer any THREE questions.

16. Write the following:
    a) Structure of Prokaryotic chromosomes.
    b) Structure of eukaryotic chromosomal DNA and their binding pattern.
17. Explain the prokaryotic and eukaryotic DNA replication.
18. What is a transcription and explain about the different steps involved in prokaryotic transcription process?
19. What is a transcription and explain about the different steps involved in the translation process and types of Post translation modifications?
20. Define Mutation and mutagen. Explain different types of chemical Mutation and types of mutagens?

P8BCE4

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry - Elective

BIOTECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What is downstream processing?
2. What are the types of fermenters?
3. What is xenobiotic?
4. What is immobilization?
5. Define cloning vector.
6. What is colony hybridization?
7. Define micro propagation
8. What is soma clonal variation?
9. What is embryo transfer?
10. What is human genome project?

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Write a note on antifoaming devices.

(or)

(b) Write down the microbial production of methane.

12. (a) What are the applications of immobilized enzymes in food and diary industry?

(or)

(b) Write a note on biodegradable plastics.

13. (a) Write a note on splicing of DNA.

(or)

(b) How will you choose a suitable host organism for cloning?

14. (a) Write a note on RFLP and its applications.

(Or)

(b) What are the applications of antisense RNA technology?

15. (a) Explain microinjection.

(Or)

(b) Write down the applications of transgenic animals.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. What is downstream processing? Explain the different stages involved.
17. Write a brief note on composting.
18. What are the cloning strategies of genomic libraries?
19. Explain the methods of gene transfer mediated by agrobacterium.
20. Write a brief account on DNA finger printing.

P8BCE4

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2015

Biochemistry

BIOTECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What are fermenters?
2. What are the different stages of microbial growth?
3. What is single cell protein?
4. Write any two applications of immobilized enzymes in leather industry?
5. What are restriction enzymes?
6. What is chromosome walking?
7. Define reporter genes.
8. Define biolistics.
9. What is in vitro fertilization?
10. What is antisense RNA technology?

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Write an account on various types of fermenters.

(or)

(b) Write down the microbial production of streptomycin.

12. (a) Write a short note on composting. (or)

(b) What is the role of single cell-protein in biotechnology?

13. (a) Write a note on human artificial chromosomes.

(or)

(b) Explain recombinant selection.

14. (a) Explain particle gun method.

(or)

(b) How protoplast is genetically modified?

15. (a) What an account on vaccines.

(or)

(b) What are the hazards of genetic engineering.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. What is microbial growth? What are the different stages involved?
17. Write a note on aerobic and anaerobic conditions in waste water treatment.
18. What is gene transfer? Explain the types with example.
19. How proteins and antibodies are commercial produced by plant tissue culture method?
20. Write a brief account on gene therapy.

P8BCE4

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2015

Biochemistry

BIOTECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

Write short notes on the following.

1. Vitamin B_{12}.
2. Stirred tank fermenter.
3. Xenobiotics.
4. Single cell protein.
5. Electroporation.
6. Homopolymer tailing.
7. Micro propagation.
8. Reporter genes.
9. PCR.
10. *ex vivo* gene therapy.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Analyse various factors that affect commercial production of methane.

(or)

(b) Enumerate the importance of antifoaming devices used in fermenters.

12. (a) What is meant by *ex situ*bioremediation? Mention its different phases.

(or)

(b) Enumerate the applications of enzymes in diary industry.

13. (a) Write an account on the nomenclature of restriction endonucleases.

(or)

(b) Differentiate shuttle vectors from expression vectors giving examples.

14. (a) Give an account of herbicide – resistant transgenic plants.

(Or)

(b) Discuss the process of particle gun method.

15. (a) Bring out the steps of fluorescence *in situ*hybridization.

(Or)

(b) Write a critical account on retroviral genetransfer.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Discuss the sequential steps involved in the commercial production of penicillin.
17. Analysevarious phases of wastewater treatment.
18. Narrate various steps involved in the production of humilin in *E.coli*.
19. How will you isolate protoplasts from plant cells?
    Give the applications of protoplast culture.
20. Write an essay on in vitro fertilization and embryo transfer.

P 8 BCE 4

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Biochemistry - Elective

BIOTECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Define Biogas.
2. Define culture media.
3. Write the uses of cellulose.
4. What do you mean by Xenobiotics?
5. Write the uses of ligases.
6. Expand the following:
   YAC and BAC
7. What is Protoplast fusion?
8. Define the term vector.
9. What are transgenic plants.
10. List out any two uses of RFLP.

PART B – (5 × 5=25)

Answer ALL Questions.

11. a) Explain the various types of fermenter. (or)
    b) Write down the microbial production of methane.
12. a) Elucidate the uses of SCP. (or)
    b) Briefly explain the applications of enzymes in food industry.
13. a) Write an account on various types of vectors. (or)
    b) Write a short note on splicing of DNA.
14. a) Describe the techniques involved in isolation of protoplast fusion. (or)
    b) Briefly explain any one methods of gene transfer in plants.
15. a) Write down the techniques involved in embryo transfer in animals. (or)
    b) List out the applications of transgenic animals.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Describe the microbial production of antibiotics.
17. Writean essay on bioremediation.
18. Explain the complete procedure of microinjection and its applications.
19. Write a detailed account on merits and demerits on gene transfer technology.
20. Discuss the hazards and safety aspects of Genetic Engineering.

P8BC11

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry

CLINICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What is galactosemia
2. Define hyperuricemia.
3. What is ketoacidosis?
4. What is sandhoff's disease?
5. Define Jaundice.
6. What is prothrombin time?
7. Define filtration fraction.
8. Write the types of LDH isoenzymes?
9. Mention any two biochemical changes in tumor cells.
10. Differentiate oncogenes and proto-oncogenes.

PART B – (5x5=25)

Answer All Questions.

11. (a) Write short notes on phenylketonuria and alkaptonuria.

(or)

(b) Explain glycogen storage diseases.

12. (a) Give an account on fatty liver.

(or)

(b) Explain ketoacidosis and neuropathy.

13. (a) Explain the causes and consequences of regurgitation Jaundice

(or)

(b) Write a note on Gastric function tests

14. (a) Give an account on renal failure and nephritic syndrome.

(Or)

(b) How will you access the tubular function test?

15. (a) Differentiate benign and malignant tumors.

(Or)

(b) Write about the mechanisms of chemical carcinogenesis.

PART C – (3x10=30)

Answer any THREE questions.

16. Discuss the disorders in:
(a) Gout, (b) Orotic aciduria, (c)Hartnup diseases.
17. Describe the role of tissues and hormones in the maintenance of blood sugar.
18. Write in detail about the tests related to excretory and detoxifying functions of liver.
19. Explain the serum pattern of enzyme and coenzymes in liver disease and myocardial infraction.
20. Write in detail about the various types of agents causing cancer.

P8BC11

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, April 2015

Biochemistry

CLINICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Bring out the reasons for elevated level of uric acid in blood.
2. Enumerate different types of homocystinuria.
3. Mention the clinical implications of retinopathy.
4. Distinguish between IDDM and NIDDM.
5. Define the term 'Cholelithiasis'.
6. What do you mean by antioxidants?
7. List out various abnormal constituents of urine.
8. Distinguish between AST and ALT.
9. What are oncoviruses? Give an example.
10. Mention any two tumour suppressor genes.

PART B – (5x5=25)

Answer All Questions.

11. (a) Write an account on the origin and composition of a amniotic fluid.

(or)

(b) Bring out the reasons for hypouricemia.

12. (a) Analyse the reasons and symptoms of Niemann Pick disease.

(or)

(b) Diabetes mellitus will cause serious long term complications – justify.

13. (a) Analyse the cause and consequences of hepatitis.

(or)

(b) Explain the reasons for gall stone formation.

14. (a) Evaluate various reasons for myocardial infraction

(Or)

(b) Increase or decrease of certain enzymes in serum is an indication of diseases' – justify.

15. (a) Enumerate the biochemical changes that occur in cancer cells.

(Or)

(b) Write an account on viral oncogenesis.

PART C – (3x10=30)

Answer any THREE questions.

16. Discuss the reasons and clinical implication of any two glycogen storage diseases.
17. Analyse that role of hormones in the maintenance of blood sugar level.
18. Classify porphyria's and their clinical features.
19. Discuss the procedure for tubular function test.
20. 'AFP and –HCG are the best available tumour markers for germ cell type of tumours' – substantiate.

P8BC11

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2015

Biochemistry

CLINICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Analyse the symptoms of gout.
2. What do you mean by amniocentesis?
3. 'Both glucagon and insulin are antagonistic in nature' – Substantiate.
4. Define the term 'Glycosylation'.
5. Bring out the reasons for Zollinger Ellison Syndrome.
6. What are Bile pigments?
7. Analyse the reasons for renal failure.
8. 'Lactate dehydrogenase is an isoenzyme' – Substantiate.
9. Bring out the clinical uses of tumour markers.
10. Mention any two oncogenes.

PART B – (5x5=25)

Answer All Questions.

11. (a) Analyse the causes and symptoms of Maple Syrup urine disease.

(or)

(b) Write a critical account on Orotic aciduria.

12. (a) Enumerate the reasons and symptoms of Gaucher's Disease.

(or)

(b) Describe the reasons and consequences of atherosclerosis.

13. (a) Distinguish between retention and regurgitation jaundice.

(or)

(b) Give an account of pentagastrin stimulation test.

14. (a) Analyse various abnormal constituents urine.

(Or)

(b) What are isoenzymes? Give any two examples.

15. (a) 'Radiation is also an agent for cancer formation' – Substantiate.

(Or)

(b) Evaluate the characteristics of an ideal tumour marker.

PART C – (3x10=30)

Answer any THREE questions.

16. Discuss the phenomenon of in born errors of metabolism with any two examples.
17. Evaluate the causes and clinical importance of any two lipid storage diseases.
18. 'Oxygen is popularly, known as a double edged sword – Justify.
19. Correlate serum Enzymes with muscular disease.
20. Analyse the morphological features and growth characteristics of cancerous cells.

P8BC11

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2016

Biochemistry

CLINICAL BIOCHEISTRY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Correlate hyperuricemia and gout.
2. What do you mean by cystinosis?
3. Mention different types of diabetes mellitus.
4. Bring out the reason for atherosclerosis.
5. Enumerate major plasma proteins.
6. Comment on the term 'Porphyrias'.
7. What are isoenzymes? Give an example.
8. How is creatinine in urine clinically important?
9. What is meant by Oncology?
10. Expand the term "AFP".

PART B – (5 × 5 = 25)

Answer All Questions Choosing either (a) or (b).

11. (a) Analyse the reasons and symptoms of alkaptonuria.

    (or)

    (b) Bring out the steps involved in immunologic test for pregnancy.
12. (a) Analyse the reasons for fatty liver.

    (or)

    (b) Discuss the role of hormones in the maintenance of blood sugar.
13. (a) Discuss the procedure for insulin stimulation test.

    (or)

    (b) Enumerate the reasons and symptoms of peptic ulcer.
14. (a) Explain in procedure for the estimation of aspartate transaminase and its clinical complications.

    (or)

    (b) Give a critical account of nephrolithiasis.
15. (a) Analyse various chemical agents that cause cancer.

    (or)

    (b) Distinguish between benign and malignant tumours.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Write an essay on the origin, composition and analysis of amniotic fluid.
17. Analyse various long term complications of diabetes mellitus.
18. Free radicals play an important role on aging process' – substantiate.
19. Discuss the procedure for any one glomerular function test and its implications.
20. Explain the mechanism of proto-oncogenes activation.

P 8 BC 11

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Biochemistry

CLINICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Cystinosis.
2. Fructosuria.
3. Glycosuria.
4. Nephropathy.
5. Hepatitis.
6. Gastritis.
7. Nephrolithiasis.
8. Myocardial infarction.
9. Oncogenes.
10. Tumor marker.

PART B – (5 × 5=25)

Answer ALL Questions.

11. a) Write a note on galactosemia. (or)
    b) Distinguish hyperuricemia and hypouricemia.
12. a) Comment on Taysach's disease. (or)
    b) Briefly explain about retinopathy.
13. a) Write a brief note on antioxidant defense mechanisms. (or)
    b) Bring out the causes and consequences of cirrhosis.
14. a) List the abnormal constituents of urine. (or)
    b) Give the differences in the transaminases composition of diseased and healthy state.
15. a) Explain the structure and growth of cancer cell. (or)
    b) Write a note on tumor suppressor gene.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Give an account on amniotic fluid.
17. Explain the types of diabetes mellitus with its diagnosis.
18. Explain the excretory and synthetic function tests of Liver.
19. Discuss in detail any four tests used to find kidney's function.
20. Give an account on the causes of cancer.

P8BCE3

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry - Elective

GENETIC ENGINEERING

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Define trade secrets.
2. Define vacuum driven blotting.
3. Give the advantages of using bacteriophages as cloning vectors.
4. What are expression vectors?
5. What is the role of topoisomerases in gene cloning?
6. How are two pieces DNA joined together?
7. How do class II restriction enzymes work?
8. What are the advantages of biolistics method of gene cloning?
9. Mention the applications of DNA finger printing.
10. What is dot blot technique used for?

PART B – (5x5=25)

Answer All Questions.

11. (a) Give the significance of gene cloning.

(or)

(b) Outline the steps involved in southern blotting.

12. (a) Write short notes on SV 40 vectors.

(or)

(b) How are human artificial chromosomes vectors used in gene cloning?.

13. (a) Discuss the mechanism of action of nucleases.

(or)

(b) How is end filling carried out?

14. (a) Explain the mechanism of gene transfer by electroporation.

(Or)

(b) Compare and contrast the methods of gene transfer by liposome and using calcium phosphate.

15. (a) Briefly outline the applications of chromosome jumping.

(Or)

(b) Discuss the steps in Northern blotting.

PART C – (3x10=30)

Answer any THREE questions.

16. Elaborate on the types of intellectual property rights.
17. How is a adenovirus and baculo virus vector constructed?
18. Compare and contrast different classes of restriction enzymes.
19. Briefly explain the any three methods of gene transfer in animals.
20. Discuss in detail the steps in DNA sequencing.

P8BCE3

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2015

Biochemistry - Elective

GENETIC ENGINEERING

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Write the importance of gene cloning.
2. What is a patent? Give an example.
3. Distinguish between M13 and λ phage based on its genetic material.
4. Highlight anyTWO features of SV40.
5. Comment on alkaline phosphatase enzyme.
6. Distinguish between T4 ligase and E.Coli ligase.
7. Highlight the role of liposomes in genetic engineering.
8. Comment on DNA footprinting.
9. What are retroviruses?
10. Distinguish between ECORI and Hind III.

PART B – (5x5=25)

Answer All Questions.

11. (a) Write a short note on tools of gene cloning.

(or)

(b) Explain the steps involved in purification of DNA sample.

12. (a) Enumerate the desirable properties of plasmids as vector.

(or)

(b) Give an account of PUC vectors in gene cloning.

13. (a) Describe the role of DNA polymerase and Topoisomerase.

(or)

(b) Explain random labeling and MIC translation.

14. (a) Discuss the biolistic method of gene transfer

(Or)

(b) Write notes on microinjection technique.

15. (a) Explain chromosome walking and jumpling and its significance.

(Or)

(b) Describe the northern blotting technique.

PART C – (3x10=30)

Answer any THREE questions.

16. Write an essay on patenting and Intellectual property rights.
17. Explain the Agrobacterium mediated gene transfer.
18. Discuss the role of DNA manipulative enzymes.
19. Write Notes on: (a) Electroporation, (b) Liposome mediated transfer.
20. Describe the principle, procedure and application of RFLP.

P8BCE3

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2015

Biochemistry - Elective

GENETIC ENGINEERING

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Highlight the objectives of Gene Cloning.
2. What is meant by IPR?
3. Distinguish between Adenoviruses and SV40
4. Define expression vector.
5. Highlight the action of topoisomerase.
6. Comment on Adaptors.
7. Distinguish between physical method and vector. Mediated glue transfer
8. Comment on Taq Polymerase.
9. Define DNA foot printing.
10. Distinguish between Gene and Genome.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Give an account of gene cloning tools.

(or)

(b) Explain the protocol of isolating DNA from microbes.

12. (a) List down the salient features of plasmids as vector.

(or)

(b) Give an account of PUC vectors.

13. (a) Discuss the role of DNA polymerase and topoisomerase.

(or)

(b) Write notes on nick translation.

14.(a) Explain the electroporation technique and its advantages.

(Or)

(b) Write notes on Microinjection method of gene transfer.

15.(a) Describe the chromosome walking and jumping technique and add a note on its application.

(Or)

(b) Describe the procedure involved in RAPID Technique.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Write an essay on patenting procedure and intellectual property rights.
17. With the help of a genome map, discuss the cloning strategy involving Ti plasmid.
18. Give an account of restriction enzymes.
19. Write an account of physical methods of general transfer.
20. Explain the PCR technology in detail

P8BCE 3

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2016

Biochemistry - Elective

GENETIC ENGINEERING

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

Write short notes on the following.

1. Gene cloning.
2. Patent.
3. Reculovirus vectors.
4. SV40
5. Plasmid incompatibility.
6. T_4 DNA ligase.
7. End filling and nick translation.
8. Electroporation.
9. Any four uses of PCR.
10. Any to limitations of RAPD.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Describe any one method for plasmid DNA purification.

(or)

(b) Briefly explain the tools and techniques involved in gene manipulation.

12. (a) Distinguish between YAC and BAC.

(or)

(b) Elaborate any two viral vectors and its propagation?

13. (a) How will you carry out random primed labeling?

(or)

(b) Write abort notes on the role of DNA polymerases in gene manipulation.

14. (a) List down the artificial gene transfer method.

(or)

(b) Enlist any five applications of electroporation.

15. (a) Describe the chain termination method of DNA sequencing.

(or)

(b) Sketch down cDNA library construction.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Discuss common wave to insert recombinant DNA intocells.
17. Summarize the steps involves in agrobacterium mediated gene transfer.
18 Explain the following :
    (a) Restriction endonucleases.
    (b) DNA ligase.
19. Describe the gene transfer using biolistics and write any five applications.
20. Overview the three steps in each cycle of a PCR reaction. Why was the discovery of a Taq polymerases so important for the development of PCR?

P8BC10

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry

IMMUNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What are auxiliary cells?
2. List the major events that occur during an inflammatory response.
3. Explain the major function of the complement system.
4. Define ADCC.
5. Define the term allograft.
6. Brief on MHC restriction
7. Give the applications of monoclonal antibodies.
8. What are attenuated vaccines?
9. What is SCID mouse?
10. List the different versions of ELISA.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) List the requirements of antigenicity.

(or)

(b) Write short notes on mononuclear phagocytes system.

12. (a) Brief on the alternative complement pathway.

(or)

(b) Explain the mechanism of phagocytosis.

13. (a) Explain the structure of HIV.

(or)

(b) Explain the causes and consequences of Systemic Lupus erythematous.

14. (a) Explain the principle and applications of genetically engineered antibodies.

(or)

(b) How will you isolate lymphocytes and their subsets in blood?

15. (a) Give the general features of antigen – antibody reaction.

(or)

(b) How does cytokines regulate cellular activity?

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Discuss the structure and functions of immunoglobulin A and G.
17. Detail on the generation of antibody diversity.
18. Explain in brief the clinical manifestations of Type I hypersensitivity reaction.
19. Give a detailed account on recombinant vector vaccines.
20. Explain the principle and technique of ELIPSOT assay.

P8BC10

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2015

Biochemistry

IMMUNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Distinguish between macrophages and microphages.
2. Define the term 'Hapten'
3. What do you mean by immune suppression?
4. Differentiate between Tc cells and Ts cells.
5. Comment on the term 'AIDS'
6. Distinguish between immediate hypersensitivity response and delayed Hypersensitivity response.
7. What do you mean by active immunization?
8. Mention any two genetically engineered antibodies.
9. List out the applications of immune electrophoresis.
10. Bring out the importance of cytokines.

PART B – (5x5=25)

Answer All Questions.

11. (a) Analyse various classes of immunoglobulins.

(or)

(b) Enumerate various cells of immune system.

12. (a) Bring out common receptors present on T cells.

(or)

(b) Give a critical account of cell mediated cytotoxicity.

13. (a) What are auto immune disease? Give any two example.

(or)

(b) Discuss the role of MHC antigens in immune response.

14. (a) Explain the procedure for the production of monoclonal antibodies.

(Or)

(b) Give an account of various types of vaccines.

15. (a) Describe the procedure for Radioimmuno assay.

(Or)

(b) Write on account on Knockout mice.

PART C – (3x10=30)

Answer any THREE questions.

12. Describe the structure and functions of thymes.
13. Discuss the phenomenon of class switching with illustration.
14. Analyse various immune evasion mechanisms seen in protozoans.
15. Explain the procedure for the production of DNA vaccines? Mention their disadvantages.
16. Analyse any two methods of immunofluorescence assay.

P8BC10

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2015

Biochemistry

IMMUNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Analyse various types of acquired immunity.
2. What are acute phase proteins?
3. Define the term 'Opsonization'?
4. Differentiate between T lymphocytes and B lymphocytes.
5. What is the role of MHC leader peptide?
6. Comment on the function of Leucotrienes.
7. Distinguish between live vaccine and attenuated vaccine.
8. Define the term 'Toxoid'.
9. Bring out the function of fluorescein.
10. Analyse the immunological significance of 'Radioimmuno Assay'.

PART B – (5x5=25)

Answer All Questions.

11. (a) Explain the structure and immunological significance of lymph node.

(or)

(b) Classify dendritic cells based on their location.

12. (a) Write a critical account on immunological memory.

(or)

(b) Evaluate the role of antigen presenting cells.

13. (a) Analyse the different types of grafts.

(or)

(b) Enumerate the functions of Major Histocompatibility complex.

14. (a) Describe the procedure for the fractionation of leucocytes by density gradient centrifugation.

(Or)

(b) Discuss the principle and prospects of edible vaccines.

15. (a) Explain the principle involved in the production of interferons.

(Or)

(b) Classify severe combined Immunodeficient (SCID) based on cellular and molecular basis.

PART C – (3x10=30)

Answer any THREE questions.

16. Analyse various physical and mechanical factors innate immunity.
17. Evaluate the different means of immunology tolerance to a bacterial antigen.
18. Discuss different types of immediate hypersensitivity.
19. Describe the procedure for the production monoclonal antibodies.
20. Bring out different types of precipitation reaction.

P 8 BC 10

(For candidates admitted from 2008 - 2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Bio Chemistry

IMMUNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Define complete antigen.
2. What protects you from infectious disease? Give examples of physical barriers of immunity.
3. Discuss the role of T-cells in immunity.
4. Define class switching.
5. Describe the structure of MHC-II molecule with a neat diagram.
6. What do you mean by autoimmunity? Give any two examples of autoimmune disorder.
7. How do you identify lymphocytes and their subsets in blood?
8. Name a recombinant vaccine that is currently being used in vaccination program.
9. What are interferons? How do interferons check infection of new cells?
10. What would happen to immune system, if thymus gland is removed from the body of a person?

PART B – (5 × 5=25)

Answer ALL Questions.

11. (a) Give a brief account on the various organs of the immune system. (or)
    (b) Explain briefly about the characteristics of an antigen.
12. (a) Give a brief note on immune suppression. (or)
    (b) Write short note on B cell and T cells receptors.
13. (a) Give an account on bone marrow transplantation with a note on the advantage and disadvantages of the same. (or)
    (b) Discuss briefly about the types of hypersensitivity reactions.
14. (a) What is Hybridoma? Give a short note on the same. (or)
    (b) Give a brief note on leukocyte migration inhibition technique.
15. (a) State the principle of RIA and explain the procedure for the same. (or)
    (b) How does a knock-in-mouse differ from a knockout mouse?

PART C – (3 × 10=30)Answer any THREE questions.

16. Write in detail about the basic structure of immunoglobulin and physiochemical properties of various immunoglobulin.
17. Define lymphocytes. Explain the structure and functions of lymphocytes with the help of neat diagram.
18. Define oncogene. Give a detailed account on tumour antigens and their immunogenicity.
19. Give a detailed account on vaccine technology.
20. What are cytokines? Give a detailed note on their biological functions.

P8BC13

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2015

Biochemistry

BIOINFORMATICS

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

12. Name the fields involved in Bioinformatics?
13. Mention any two search engine technologies.
14. What do you mean by Python?
15. List any four features of Linux.
16. Differentiate between INSDC and Uniprot.
17. What do you know about DBGET?
18. What do you mean by scoring matrices?
19. Write about dendrogram and its uses.
20. Define the term Toxicogenomics.
21. What is WIT?

PART B – (5 × 5 = 25)

Answer All Questions.

22. (a) Elaborate the role of Computers in Biology.

(or)

(b) Explain the types and functions of an operating system.

12. (a) Describe scoring on UNIX system.

(or)

(b) Illustrate the setting up of Linux workstation.

13. (a) Point out various types of structure database.

(or)

(b) Enumerate the databases and tools in Entrez.

14. (a) How does PSIBLAST differ from normal BLAST search?

(or)

(b) Enumerate the steps involved in sequence annotation.

15. (a) Write a note of protein structure prediction and visualization.

(or)

(b) Give an account of metabolic pathway database.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Classify the database models.
17. Outline various markup languages for web page design.
18. Discuss database similarity search tools and their uses.
19. Explain the types of scoring matrices.
20. Describe various types of Genomics.

P8BC13

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

Biochemistry

BIOINFORMATICS

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Who is pioneer of Bioinformatics?
2. Describe – Entrez.
3. Define – Software.
4. Write any two scripting languages in bioinformatics.
5. What is HTML?
6. Write any two structure data bases.
7. Point out any two uses of database.
8. Describe FASTA.
9. What is phylogeny?
10. Define metabolomics.

PART B – (5x5=25)

Answer All Questions.

12. (a) Elaborate about Biological search engine.

(or)

(b) Discuss how to retrieve research articles in PubMed with advanced search.

12. (a) Short notes on Python.

(or)

(b) Discuss how useful HTML and XML in Bioinformatics?

13. (a) Write an essay on DBMS.

(or)

(b) Write notes on the biological databases.

14. (a) Difference between BLAST AND PSI BLAST.

(Or)

(b) Write the algorithm used in global sequence alignment.

15. (a) Short notes on Pharmacogenomics.

(Or)

(b) Write an essay on Kegg.

PART C – (3x10=30)

Answer any THREE questions.

16. Elaborate Applications of Bioinformatics.
17. Essay on Bioinformatics work Station.
18. Detailed account on Data submission Data retrieval with Entrez.
19. Give an account on character based methods of Phylogenetics.
20. Write an essay on protein modeling.

P8BC13

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2016

Biochemistry

BIOINFORATICS

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Comment on Computational biology.
2. List any four browsers.
3. What do you mean by workstations?
4. Point out any four properties of UNIX.
5. Differentiate between gene and genome.
6. Bring out the significance of SRS.
7. Expand PSIBLAST.
8. What is an annotation?
9. Mention any two visualization tools and their uses.
10. Write any two uses of nanotechnology in drug development.

PART B – (5 × 5 = 25)

Answer All Questions Choosing either (a) or (b).

11. (a) Enlist the scope of Bioinformatics.

(or)

(b) Explain the search orgine and its uses.

12. (a) Briefly explain the markup languages.

(or)

(b) Elaborate any five commands in UNIX.

13. (a) Distinguish between hierarchical and network model.

(or)

(b) Discuss various databases in Molecular Biology.

14. (a) Elaborate the steps involved in BLAST.

(or)

(b) Explain scoring matrices and its uses.

15. (a) Illustrate the drug discovery pipeline.

(or)

(b) Explain the concept of E-cell in systems biology.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Discuss the types and functions of an operating system.
17. Elaborate scripting languages.
18. Summarize sequence submission and retrieval in NCBL.
19. Overview multiple sequence alignment and its tools.
20. Discuss the following:
    (a) KEGG
    (b) Metabalomics.

(For candidates admitted from 2008-2009 onwards) **P8BC13**

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Biochemistry

BIOINFORMATICS

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Describe – PubMed.
2. Define –OS.
3. What are the markup languages?
4. Who developed python?
5. Write any two protein sequence data base.
6. Define genome.
7. List out the features of MEGA.
8. What are the types of protein sequence alignment methods?
9. Write any two molecular modeling online tools.
10. Define primer.

PART B – (5 × 5=25)

Answer ALL Questions.

11. a) Elaborate the scope of Bioinformatics. (or)
    b) Discuss how to retrieve research articles in PubMed with advanced search.
12. a) Define perl, how this is useful to biological community. (or)
    b) Explain the file, directories and its related commands in UNIX.
13. a) Describe protein structure database and brief about its types. (or)
    b) Point out features of MMDB.
14. a) Write short notes on Amino acids. (or)
    b) Detailed account on MSA.
15. a) Shorts notes on Pharmacogenomics. (or)
    b) Elaborate primer design.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Role of computers and algorithms in Biology.
17. Write a perl program to convert DNA - RNA
18. What are biological databases? Explain the types of primary databases.
19. Discuss character based methods of phylogenetic analysis.
20. How to model a protein with 29% of sequence Identity?

P8BCE2

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2014

Biochemistry

ENDOCRINOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. How do releasing factors help in hormone functioning?
2. Mention any two disorders of prolactin secretion.
3. How is hypothyroidism manifested?
4. What is Osteomalacia?
5. Mention the clinical manifestations of aldosteronism.
6. Give the functions of ACTH
7. Define gynecomastia.
8. List the biological effects of somatostatin.
9. Define autocrine signaling.
10. Why G-protein coupled receptors are called so?

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) What are the effects of growth hormone deficiency in adults?

(or)

(b) Discuss the physiological role of ACTH.

12. (a) How is calcium homeostasis regulated by parathyroid hormone?

(or)

(b) Describe the metabolic fate of thyroid hormones.

13. (a) What are the causes and signs and symptoms of adrenal insufficiency?

(or)

(b) Add a note on the sign of symptoms of Cushing's syndrome.

14. (a) Discuss the biological role of Oestrogens.

(or)

(b) Write a short notes on pheochromocytoma and its symptoms.

15. (a) Add a note on paracrine signaling.

(or)

(b) Explain the mechanism of signal transduction by Tyrosine kinases.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Explain the role of vasopressin in kidney and cardiovascular functions..
17. What are the different classes of thyroid hormones? How do they execute their biological effects?
18. What is aldosteronism? Explain the clinical manifestations and treatment strategies.
19. Give an account of the mechanism of action of glucagon.
20. Explain the mechanism of signal transduction using nuclear receptors.

P8BCE2

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2015

Biochemistry - Elective

ENDOCRINOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What is the function of hypothalamic releasing factors?
2. What is Leptin?
3. Define hypocalcaemia. What is the normal value of Calcium?
4. Give the structure of T^3.
5. What is aldosteronism?
6. Mention any two biological effects of catecholamines.
7. What are the manifestations of progesterone imbalance?
8. Mention the clinical significance of glucagon.
9. How do ion channels help in signaling?
10. What is meant by endocrine signaling?

PART B – (5x5=25)

Answer All Questions.

11. (a) Add a note on the hyper function of TSH and its management.

(or)

(b) What are the complications arising during SIADH?

12. (a) How is hypothyroidism treated?

(or)

(b) Add a note on biological action of parathyroid hormone.

13. (a) Outline the pathway of synthesis of catecholamines from tyrosine.

(or)

(b) How is aldosteronism treated?

14. (a) Discuss the function of gonadal hormones?

(Or)

(b) Write short notes on corpus luteum.

15. (a) Explain the mechanism of signal transduction by serine kinases.

(Or)

(b) How do cyclic nucleotides act as second messengers?

PART C – (3x10=30)

Answer any THREE questions.

16. Briefly outline the mechanism of hormone action.
17. How is hyper and hypothyroidism manifested? Explain the treatment protocols adopted.
18. Write short notes on :
    (a) Cushing's syndrome
    (b) Pheochromocytoma.
19. Explain briefly the different types gastrointestinal hormones and their functions.
20. Explain the mechanism of action of GPCR's.

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

Biochemistry – Elective

ENDOCRINOLOGY

Time : Three hours Maximum : 75 marks

SECTION A– (10X2=20)

Answer All Questions.

1. Explain – ACTH.
2. What is meant by hypopituitarism?
3. Write about thyroid function tests.
4. Define – calcitriol.
5. Explain – primary aldosteronism.
6. Comment on adrenal cortical insufficiency.
7. What are the functions of pancreatic hormones?
8. Write a short note on insulin receptor.
9. Define – receptor tyrosine kinases.
10. What is meant by MAPK?

SECTION B – (5x5=25)

Answer All Questions.

11. (a) Write a note on classification of hormones. (or)
    (b) Describe about Diabetes insipidus.
12. (a) Substantiate the hormonal regulation of calcium and phosphorus. (or)
    (b) Differentiate hypercalcemia and hypocalcaemia.
13. (a) Elaborate the mechanism of adrenal medullary hormones. (or)
    (b) Explain in detail on pheochromocytoma.
14. (a) Write about the biological effect of pancreatic hormones. (or)
    (b) Give a brief account on gastrointestinal hormones.
15. (a) Differentiate endocrine, paracrine and autocrine signaling with suitable illustration. (or)
    (b) Write about the importance of crosstalk in signaling pathways with suitable examples.

SECTION C – (3x10=30)

Answer any THREE questions.

16. Give a detailed note on anterior pituitary hormones.
17. Explain about hyper and hypothyroidism.
18. Write a note on synthesis, metabolism and biological effect of adrenal cortical hormones.
19. Enumerate the metabolism and biological effects of oestrogen and progesterone.
20. How signal is transduced through cytoplasmic and nuclear receptors?

P 8 BCE 2

(For candidates admitted from 2008-2009 onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2017.

Biochemistry - Elective

ENDOCRINOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer ALL Questions.

1. Define – Leptin.
2. What is meant by SIADH secretion?
3. Write the functions of antithyroid agents.
4. What are the causes of osteomalacia?
5. Explain –Cushing's syndrome.
6. How catecholamines regulate the biological function?
7. Bring out the action of androgens.
8. Comment on foetal monitoring.
9. Explain – GPCRs.
10. What are secondary messengers?

PART B – (5 × 5=25)

Answer ALL Questions.

11. a) Give a detailed note on hypothalamic releasing factors. (or)
    b) Explain the disorders of growth hormones.
12. a) Differentiate hyper and hypothyroidism. (or)
    b) Write a clinical note on secretion and biological action of PTH.
13. a) Write a note on synthesis, metabolism and regulation of catecholamines. (or)
    b) Give a detailed account on congenital adrenal hyperplasia.
14. a) Write about hypogonodism. (or)
    b) Give a brief account on menstrual cycle.
15. a) Explain the role of cytoplasmic and nuclear receptors in signal transduction. (or)
    b) Explain Ras-raf-MAPK cascade.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Give a detailed note on anterior pituitary hormones.
17. Substantiate the hormonal regulation of calcium and phosphorus.
18. Elaborate the mechanism of adrenal medullary hormones.
19. Enumerate the synthesis, metabolism and biological effects of pancreatic hormones.
20. Differentiate endocrine, paracrine and autocrine signaling with suitable illustration.