SHRIMATI INDIRA GANDHI COLLEGE

(Nationally Accredited at 'A' Grade (3rd Cycle) By NAAC)
Tiruchirappalli – 2.

QUESTION BANK FOR

B.Sc BIOCHEMISTRY

2017-2018

DEPARTMENT OF BIOCHEMISTRY

CONTENT

	MOLECULAR BIOLOGY	RCCSBC 6	43
	PHARMACEUTICAL BIOCHEMISTRY	MBEBC 1	46
	PHARMACOGNOSY	RSBE 5:2	49
VI	BASIC BIOTECHNOLOGY	RCCSBC 8	51
	CLINICAL BIOCHEMISTRY	RCCSBC 9	55
	ENDOCRINOLOGY	MBEBC 2	58
	IMMUNOLOGY	MBEBC 3	62

RACSY 76 A

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2014.

Part III – Allied

BIOCHEMISTRY - I

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. What are the components of lactose sugar?
2. Name some disaccharides.
3. What is – helix?
4. Name some amino acids with aromatic side chains.
5. What is Saponification number?
6. What are fats?
7. What is a nucleotide?
8. What is the function of m-RNA?
9. Name he source of folic acid.
10. What are the symptoms of pellagra?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Give the structure of glucose. (or)
    (b) Comment on the biological significance of carbohydrate.
12. (a) Analyse the estimation of protein. (or)
    (b) Write the classification of protein.
13. (a) Explain the estimation of lipids. (or)
    (b) Write the classification of lipids.
14. (a) Highlight the structure and functions of tRNA. (or)
    (b) Write the structure of double stranded DNA.
15. (a) Write notes on Vitamin D. (or)
    (b) Discuss on vitamin A.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Write the colorimetric method of estimation of sugar.
17. Explain the secondary structure of protein.
18. Discuss the properties and functions of lipids.
19. Write the structure and functions of rRNA.
20. Explain the sources, functions and deficiency syndromes of Vitamin C.

RACSY 76A

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Allied

BIOCHEMISTRY - I

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

1. What are Homopolysaccharides? Give examples.
2. Define mutarotation.
3. What are fibrous proteins? Give examples.
4. Define proteogenic amino acids. Give examples.
5. What are oils?
6. Define Saponification.
7. Give the structure of purines of DNA.
8. Define nucleotides.
9. Give the chemical name of Vitamin K and Vitamin A.
10. What are Ergosterols?

PART B – (5x5=25)

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

11.(a) Differentiate reducing sugars. (or)

(b) Write the classification of monosaccharides with suitable examples.

12. (a) Define peptide bonds. Write the structure of dipeptide. (or)

(b) Write the classification of conjugated proteins with examples.

13. (a) Give an account on the physical properties of lipids. (or)

(b) Write the classification of simple lipids.

14. (a) List out the different forms of DNA and their functions. (or)

(b) Describe the structure of tRNA.

15.(a) Give an account on the dietary sources and function of Vitamin C. (or)

(b) List out any five Vitamin B complex and their forms of co enzymes.

PART C – (3x10=30)

Answer any THREE questions.

16. Give a detailed account on the biological importance of carbohydrates.
17. Write the classification of amino acids.
18. Discuss the methods of estimation of lipids.
19. Differentiate DNA and RNA.
20. What are fat soluble vitamins? Discuss their function and deficiency symptoms.

16 SACBC 1

(For candidates admitted from 2016-2017 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2016.

Part III - Allied

BIOCHEMISTRY - I

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. Define carbohydrates.
2. Give the structure of glucose.
3. Name the essential amino acids.
4. Write the sources of proteins.
5. Mention any four functions of lipids.
6. Comment on poly unsaturated fatty acids.
7. Write any two differences between DNA and RNA.
8. Draw the structure of tRNA.
9. Define vitamins.
10. What is xeropthalmia?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Write a short on digestion of carbohydrates.(or)
    (b) Enumerate the biological significance of carbohydrates.
12. (a) Elaborate on the classification of proteins. (or)
    (b) Describe the classification of amino acids based on the structure.
13. (a) Write a note on
        i) Saponification (or)
        ii) Rancidity.
    (b) Define lipids. Mention the sources of lipids.
14. (a) Give an account of mRNA. (or)
    (b) Compare the different conformations of DNA double helix.
15. (a) Write the functions of Vitamin K. (or)
    (b) Explain the deficiency symptoms of vitamin - D.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Write an essay on classification of carbohydrates.
17. Discuss the organization of protein structure in detail.
18. Describe the classification of Lipids.
19. Explain the structure of DNA with a neat sketch.
20. Give a detailed account on functions and deficiency symptoms of B-complex vitamins.

16 SACBC 1

(For candidates admitted from 2016-2017 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017

Part III - Allied

BIOCHEMISTRY - I

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Write any four biological significance of carbohydrates.
2. What are enantiomers?
3. Define proteins.
4. How the peptide bonds are formed.
5. Define fatty acids.
6. What is triacyl glycerol?
7. Write the composition of nucleoside and nucleotide.
8. Give the importance of Chargaff's rule.
9. Comment on Beriberi
10. Mention the sources of vitamin - c.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Explain how the digested carbohydrate is absorbed. (or)
    (b) Write a short note on carbohydrates.
12. (a) Describe protein α - helix with sketch. (or)
    (b) How aminoacids are classified based on nutritional requirement.
13. (a) Write a short note on phospholipids. (or)
    (b) Mention the sources of lipids. Enumerate the functions of lipids.
14. (a) What are nucleic acids? Write about different conformations of DNA double helix. (or)
    (b) Give any five differences between DNA and RNA.
15. (a) Describe the functions of vitamin B_{12}. (or)
    (b) Write a short account on vitamin B_{12}.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Discuss the digestion of carbohydrates in detail.
17. Write on essay on classification of proteins.
18. Explain the types of fatty acids.
19. Describe the types, functions and structures of RNA.
20. Write a detailed account on fat soluble vitamins.

RACSY 76 C

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2014.

Part III - Allied

BIOCHEMISTRY - II

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

Describe the following:

1. Neutrophils.
2. Heparin.
3. Unit membrane hypothesis.
4. Permeability.
5. ADH.
6. Exophthalmic goiter.
7. Phycobilins.
8. Carotenes.
9. True Alkaloids.
10. Abscisic acid.

PART B – (5x5=25)

Answer All Questions.

11.(a) Write short account on blood clotting factors. (or)

(b) Trace the origin of blood cells.

12. (a) Describe the biochemical composition of plasma membrane. (or)

(b) What do you mean by cell wall? Describe the structure of the cell wall.

13. (a) What are the metabolic functions of Insulin? (or)

(b) Describe the diseases which are associated with hypo and hyper secretions of Growth hormone.

14. (a) Write about the structure of chlorophyll-a pigment. (or)

(b) Present an account Anthocyanins.

15.(a) What are the types of alkaloids? (or)

(b) Discuss the physiological effects of gibberellins.

PART C – (3x10=30)

Answer any THREE questions.

16. Write a detailed account on cellular composition of blood.
17. Describe in detail the fluid mosaic model of plasma membrane with a sketch.
18. Bring out the biological effects of male sex hormones.
19. Describe the biosynthesis of chlorophyll pigments.
20. What are the functions of Auxins?

RACSY 76C

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Allied

BIOCHEMISTRY - II

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

Describe the following.

1. RBC.
2. Thrombocytes.
3. Diffusion.
4. Desmosomes.
5. Diabetes mellitus.
6. Cashing's disease.
7. Chlorophyll pigments.
8. Carotenoids.
9. Growth regulating substances.
10. Bolting.

PART B – (5x5=25)

Answer All Questions.

11.(a) Comment on WBC. (or)

(b) Write short account on origin of Blood cells.

12. (a) Describe the types of pits in a cell wall. (or)

(b) Explain the trilaminar model of plasma membrane.

13. (a) What are the metabolic functions of Thyroxin hormone? (or)

(b) Comment on Ovarian hormones.

14. (a) Describe the role of pigment system I in photosynthesis. (or)

(b) Give an account on Phycobilins.

15.(a) What are the functions of Flavonoids? (or)

(b) What are the effects of Cytokinins?

PART C – (3x10=30)

Answer any THREE questions.

16. Describe the mechanism of Blood Clotting.
17. Write an essay on Active transport and Ion pumps.
18. Write a detailed account on metabolic functions of hormones from Parathyroid gland. Add notes on hypo and hyperparathyroidism.
19. Present a detailed account on Major and Accessing Plaint Pigments.
20. What are the differences between Gibberellins and Auxins?

RACSY 76 C

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Allied

BIOCHEMISTRY - II

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

Describe the following.

1. Fibrinogen.
2. Basophils.
3. Contribution by singer and Nicolson.
4. Gap junction.
5. Progesterone.
6. Addison's disease.
7. Auxins.
8. Cytokinins.
9. Parthenocarpy.
10. Isoflavonoids.

PART B – (5x5=25)

Answer All Questions.

11. (a) Write a brief account on origin of blood cells. (or)
    (b) Comment on WBC.
12. (a) Describe the biochemical fractions of plasma-membrane. (or)
    (b) Explain the structure of cell wall with a sketch?
13. (a) What are the effects of Adrenaline and noradrenaline? (or)
    (b) Describe the metabolic functions hormone from testis.
14. (a) Describe the biosynthesis of carotenoids. (or)
    (b) Explain role of chlorophylls in photosynthesis.
15. (a) What are the functions of Terpenoids in higher plants. (or)
    (b) Describe the role of Abscisic acid.

PART C – (3x10=30)

Answer any THREE questions.

16. Describe the mechanism of Blood clotting.
17. Describe in detail about transport mechanism across membranes you have studied.
18. Write a detailed account on metabolic function of hormones from pancreas. Add notes on hyposecretion of Insulin.
19. Write an essay on biosynthesis of chlorophyll pigments.
20. What are the functions of Flavonoids?

RACSY 76 C

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017

Part III - Allied

BIOCHEMISTRY - II

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What is plasma?
2. Mention the role of WBC.
3. Name the carbohydrates present in bio membrane.
4. What is plasma membrane?
5. Comment on grave's disease.
6. Write the characteristics of acromegaly.
7. Which pigments are most effective for photosynthesis?
8. Give the functions of Phycobilins.
9. Define phytohormones.
10. Define the structure of chief cytokinins.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) What are the major components of blood? Enumerate the functions of blood. (or)
    (b) How is blood coagulated?
12. (a) Write a note on sodium-potassium pump. (or)
    (b) Describe the proteins and lipids present in bio membrane.
13. (a) How insulin and glucagon helps in glucose homeostasis. (or)
    (b) Describe the functions of estrogen and androgens.
14. (a) Explain Phycobilins biosynthetic pathway. (or)
    (b) Elaborate the photosynthetic pigments.
15. (a) Write the physiological effects of Abscisic acid. (or)
    (b) Give an account on plant secondary metabolites.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Write an essay on origin of blood cells.
17. Explain plasma membrane structure with neat sketch.
18. Describe the classification of hormones in detail.
19. Discuss anthocyanin biosynthetic pathway.
20. Write any ten differences between Auxins and gibberellins.

16 SACBC 2

(For candidates admitted from 2016-2017 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III - Allied

BIOCHEMISTRY - II

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. What is Serum?
2. Define plasma.
3. Name the endocrine cells of pancreas.
4. Why vasopressin is called as antidiuretic hormone?
5. Comment on thyrotoxicosis.
6. What happens when ACTH is over produced?
7. Mention the types of carotenoids.
8. What is biliproteins?
9. Name the plant hormones that can induce Parthenocarpy.
10. What are plant hormones?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Write short notes on functions of blood.(or)
    (b) Explain intrinsic pathway of blood coagulation.
12. (a) Describe the biosynthesis of thyroid hormones. (or)
    (b) Give the functions of catecholamines.
13. (a) Elaborate on hypothyroidism. (or)
    (b) Write the abnormalities of GH production.
14. (a) Give an account on Phycobilins. (or)
    (b) Write short note on anthocyanin.
15. (a) Write the role of gibberellins. (or)
    (b) Give a short note on functions of auxin.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Explain various methods adopted to characterize blood.
17. Discuss the functions of sex hormones.
18. Write an essay on hypoparathyroidism and hyperparathyroidism.
19. Give an account on major plant pigments.
20. Describe the structure and functions of cytokinins.

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

BIOMOLECULES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Give the structure of galactose.
2. What is invert sugar? Why is it called so?
3. What are essential amino acids? Give example.
4. What is isoelectric point?
5. Write the structure of a nucleoside.
6. How can a phosphodiester bond is formed?
7. Define saponification number.
8. Give the structure of phosphatidyl ethanol amine.
9. List the functions of Vitamin D.
10. What are the sources of Vitamin B_1?

PART B – (5x5=25)

Answer All Questions.

11.(a) Explain the structure and properties of Maltose. (or)

(b) Explain the interconversion of sugars.

12. (a) Elaborate on the forces that stabilize protein structure. (or)

(b) Write about the colour reactionsof aminoacids.

13. (a) Explain the structure of tRNA. (or)

(b) Describe the denaturation and renaturation of DNA.

14. (a) Explain the types of fatty acids with examples. (or)

(b) Write a note on Sphingolipids.

15.(a) List out deficiency diseases of Vitamin A. (or)

(b) Write the structure of Vitamin C and write its functions.

PART C – (3x10=30)

Answer any THREE questions.

16. Write a detailed account on the structure and properties of glycogen.
17. Explain the quaternary structure of proteins.
18. Explain the Watson – Crick model of DNA.
19. How are lipids classified? Explain with examples.
20. Explain the sources, properties, functions and deficiency diseases of pyridoxine.

16 SCCBC 1

(For candidates admitted from 2016-2017 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2016.

Part III - Biochemistry – Major

BIOMOLECULES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. What are isomers? Give an example.
2. What are glycans?
3. What are glutamines and prolamines?
4. What are essential amino acids?
5. Name two saturated fatty acids with structures.
6. What is Lecithin? Write its structure.
7. Write the structure of Vitamin D.
8. Write the sources of Vitamin D.
9. What are nucleotides?
10. How a phosphodiester bond is formed?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Explain the phenomenon of mutarotation.(or)
    (b) Write the structure and functions of lactose and sucrose.
12. (a) Write a note on biologically important peptides. (or)
    (b) Comment on the different bonds that stabilize protein structure.
13. (a) Explain the classification of lipoproteins. (or)
    (b) How will you characterize oils?
14. (a) Write the role of Vitamin A in vision.
    (b) What is beriberi? Explain its types.
15. (a) Write a note on denaturation of DNA. (or)
    (b) Explain the structure of tRNA.

PART C – (3 × 10=30)

Answer any THREE questions.

16. What are homoglycans? Discuss the structure and biological properties of homoglycans.
17. Outline the different levels of protein structure.
18. Discuss the structure and functions of various prostaglandins.
19. Summarize the sources, biological functions, requirements and deficiency symptoms of Vitamin C.
20. Discuss the isolation and purification procedures for DNA.

16 SCCBC 1

(For candidates admitted from 2016-2017 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major

BIOMOLECULES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. Write the molecular formula and structure of fructose.
2. What are enantiomers? Give example.
3. What are zwitter ions?
4. List out the various secondary structures of protein.
5. Define waxes.
6. What is saponification value?
7. Write the structure of Vitamin A.
8. List the sources of Vitamin A.
9. Write the structure of ATP.
10. List out the various purines and pyrimidines.

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Brief the biological functions of various disaccharides.(or)
    (b) How will you classify monosaccharides based on the number of carbon atoms?
12. (a) Explain the physical properties of proteins. (or)
    (b) Write a note on peptide bond.
13. (a) Brief the role played by phospholipids. (or)
    (b) Write the structure and functions of triglycerides.
14. (a) Discuss the sources and deficiency manifestations of vitamin K. (or)
    (b) Write a note on Vitamin B_{12}.
15. (a) Brief the isolation procedure for RNA. (or)
    (b) Write a note on nucleosides.

PART C – (3 × 10=30)

Answer any THREE questions.

16. What are heteroglycans? Explain the properties and biological functions of heteroglycans.
17. Explain the classification of amino acids with structure.
18. Discuss the classification and composition of lipoproteins.
19. Explain the sources, biological functions requirements and deficiency manifestations of vitamin D.
20. Discuss the structure and biological functions of various RNAs.

RCCSBC 3

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2014.

Part III - Biochemistry – Major

HUMAN PHYSIOLOGY

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

PART A– (10X2=20)

Answer All Questions.

1. Name any two primary bile acids.
2. What is the action of pancreatic lipase?
3. Name the different types of blood cells.
4. List the functions of haemoglobin.
5. What are the two types of semilunar values?
6. Define internal respiration.
7. Name the proteins involved in muscular contraction.
8. What is a nephron?
9. List any two neurotransmitters.
10. What are endorphins?

PART B – (5x5=25)

Answer All Questions.

11.(a) Give the anatomy of digestive system. (or)

(b) Write the composition and functions of intestinal juice.

12. (a) Elaborate on body buffers. (or)

(b) Write the composition and functions of blood.

13. (a) Draw a normal ECG curve and explain. (or)

(b) How is CO_2 transported and exchanged?

14. (a) Sketch on electron microscopic structure of skeletal muscle. (or)

(b) Write the composition of urine?

15.(a) Explain synaptic transmission. (or)

(b) Add a note on Endorphins of enkephalins.

PART C – (3x10=30)

Answer any THREE questions.

16. How are lipids digested and absorbed?
17. What are the different factors involved in blood coagulation? Explain the mechanism of blood coagulation.
18. Explain the mechanism of respiration.
19. Describe the mechanism of muscular contraction.
20. How is action potentials generalized?

RCCSBC 3

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major

HUMAN PHYSIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Write the names of any two intestinal hormones.
2. Mention the functions of bile salts.
3. What is transcellular fluid?
4. List any four body buffers.
5. What is tidal volume?
6. When do we hear the first and the second heart sound?]
7. Define: Sarcomere.
8. What is GFR? Give its normal value.
9. Define: Synapse.
10. Name any two excitatory neurotransmitters.

PART B – (5x5=25)

Answer All Questions.

11. (a) Give the composition of bile. Write its actions. (or)
    (b) Explain the movements in the GI tract.
12. (a) How are body fluid distributed?. (or)
    (b) Explain the ABO and Rhesus system of blood grouping.
13. (a) List the cardiac factors which control blood pressure. (or)
    (b) How is acid-base balance maintained by lungs?
14. (a) Draw the structure of a Kidney and explain. (or)
    (b) Explain renal regulation of acid-based balance.
15. (a) Describe the chemical composition of brain. (or)
    (b) How is action potential generated and conducted?

PART C – (3x10=30)

Answer any THREE questions.

16. How are proteins digested and absorbed?
17. How are WBC’s formed?
18. Define cardiac cycle. What are the events in the cardio cycle.
19. How is urine formed?
20. Explain the excitatory and inhibitory neurotransmitters.

RCCSBC 3

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

HUMAN PHYSIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. List the functions of gastric HCI.
2. What are bile acids? Name them.
3. Write the composition of blood.
4. Name any four body buffers.
5. Define cardiac cycle.
6. List the functions of heart.
7. Name the contractile proteins.
8. Differentiate between obligatory reabsorption and facultative reabsorption.
9. What is ALL or NONE law?
10. What are endorphins?

PART B – (5x5=25)

Answer All Questions.

11.(a) Give the composition and functions of gastric juice. (or)

(b) How is food absorbed in the small intestine?

12. (a) Explain the different types of blood cells. (or)

(b) Describe the composition of ECF and ICF.

13. (a) Draw the structure of a heart and explain. (or)

(b) What is the role of lungs in maintaining acid-base balance?

14. (a) Write the composition of urine. (or)

(b) How are kidneys involved in maintaining acid-base balance?

15.(a) How is nervous system classified? (or)

(b) Explain the biochemical aspects of learning.

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the digestion and absorption of lipids.
17. Describe the stages in blood coagulation.
18. How is O_2 and CO_2 exchanged between blood and lung and between blood and tissues?
19. How is urine formed?
20. Discuss about neurotransmitters.

RCCSBC 3

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2016.

Part III - Biochemistry – Major

HUMAN PHYSIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. List the functions of mucin.
2. Name the hormones of gastrin family.
3. Differentiate serum from plasma.
4. Name any two body buffers.
5. List the major cations of ECF.
6. What is Osmolarity?
7. What are the different kinds of muscle?
8. Write any two functions of nephron.
9. What is All or None law?
10. What are endorphins?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Write the composition and functions of gastric juice.(or)
    (b) Explain the movements in GI tract.
12. (a) Bringout the differences between the ECF and ICF (or)
    (b) How is blood grouping performed?
13. (a) What are the factors controlling blood pressure? (or)
    (b) Explain Internal respiration.
14. (a) Explain the renal regulation of acid-base balance. (or)
    (b) Describe the structure of muscle fiber.
15. (a) How is nervous system classified. (or)
    (b) Give the chemical composition of brain.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Explain the absorption in the small intestine and large intestine.
17. Describe the mechanism of blood coagulation.
18. Describe the exchange of gases between lung and blood and between blood and tissues.
19. Explain the mechanism of urine formation.
20. Describe synaptic transmission.

16 SCCBC 2

(For candidates admitted from 2016-2017 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major

HUMAN PHYSIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. What is transcellular fluid?
2. List the body buffers.
3. Draw a normal ECG wave pattern.
4. Write the functions of heart.
5. Name the bile salts.
6. What are the functions of gastric HCL?
7. What is the role of calcium in muscle contraction?
8. What is GFR? Give its normal value.
9. What are endorphins?
10. What are nodes of Ranvier?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) What are the components in blood?(or)
    (b) Explain the blood groups.
12. (a) Draw the structure of a heart and explain. (or)
    (b) What is internal respiration? Explain.
13. (a) Add a note on intestinal hormones. (or)
    (b) Explain the absorption in large intestine.
14. (a) Draw the structure of a nephron and explain. (or)
    (b) Differentiate the different types of muscles.
15. (a) How can a nerve impulse be initiated? (or)
    (b) Write the chemical composition of brain.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Comment on haemopoiesis.
17. Explain the mechanism of respiration.
18. Explain the digestion and absorption of carbohydrates.
19. Describe the sliding filament mechanism of muscular contraction.
20. Explain synaptic transmission.

RCCSBC 2

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2014.

Part III - Biochemistry – Major

BIOCHEMICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Define pH.
2. What is surface tension?
3. Name any two anion exchangers.
4. Mention any two column packing materials.
5. List any two applications of PAGE.
6. Write the different types of centrifuges.
7. State Beer-Lambert's law.
8. Write any two applications of ESR.
9. Define Curie.
10. What is negatron emission? Give an example.

PART B – (5x5=25)

Answer All Questions.

11.(a) Derive Henderson-Hessel batch equation. (or)

(b) What are colloids? Write its types.

12. (a) Write the principles of column chromatography. How are plant pigments separated by this? (or)

(b) Name the components in HPLC. How is it useful in peptide separation?

13. (a) Explain the principle of electrophoresis. (or)

(b) How are organelles separated by differential centrifugation?

14. (a) Explain the working of a colorimeter. (or)

(b) Give the principle, technique and applications of a spectrofluorimeter.

15.(a) Sketch a Warburg manometer and explain its usefulness in measurement of gases. (or)

(b) How is ARG useful in determining the site on DNA synthesis?

PART C – (3x10=30)

Answer any THREE questions.

16. How is molecular weight determined by osmotic pressure method?
17. Write the principle of GLC. How is GLC useful in the separation of compounds?
18. How are proteins separated by SDS-PAGE?
19. Give the principle of NMR. How is molecular structure determined by NMR.
20. What is internal and external scintillation? Explain.

RCCSBC 2

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

BIOCHEMICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Define surface tension.
2. What is the pH of a solution whose $[H^+]$ is 4.5×10^{-6}?
3. Name the carrier gases used in Gas chromatography.
4. Write the principle of Centrifugation.
5. Name the supporting materials used in electrophoresis.
6. What is absorption spectrum?
7. What is the principle of mass spectroscopy?
8. What are the different types of Centrifuges?
9. Write the units of Radioactivity.
10. Differentiate scintillation counter from GM counter.

PART B – (5x5=25)

Answer All Questions.

11. (a) Derive Henderson-Hasselbatch equation. (or)
    (b) Explain Donnan membrane equilibrium.
12. (a) How are amino acids separated by paper chromatography? (or)
    (b) Write the principle, technique and applications of ion exchange chromatography.
13. (a) Explain the principle and technique of isoelectric focusing. (or)
    (b) How southern blotting is performed?
14. (a) Sketch a colorimeter and explain. (or)
    (b) Write a note on MALDI-TOF.
15. (a) Explain radioactive decay. (or)
    (b) Draw a Warburg manometer and explain.

PART C – (3x10=30)

Answer any THREE questions.

16. How is molecular weight determined by osmotic pressure?
17. Draw HPLC and explain its working. List its applications.
18. Draw an analytical ultracentrifuge and explain how it is useful in determination of molecular weight of a molecule.
19. Explain the principle, technique and applications of NMR.
20. How is scintillation counter useful in the measurement of radioactivity?

RCCSBC 2

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major

BIOCHEMICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Define viscosity.
2. What are redox reactions?
3. What is adsorption coefficient?
4. Write any two applications of GLC.
5. Differentiate southern from western blotting.
6. What is an analytical ultracentrifuge?
7. Mention the light sources for UV spectrophotometer.
8. List any two applications of mass spectrometry.
9. Write any two differences between radioisotopes and stable isotopes.
10. What are the advantages of scintillation counter?

PART B – (5x5=25)

Answer All Questions.

11. (a) Sketch an oxygen electrode and explain. (or)
    (b) Explain the laws of thermodynamics.
12. (a) What is the principle of TLC? Explain how TLC is useful in the separation of compounds. (or)
    (b) How are enzymes purified by affinity chromatography?
13. (a) How is immune electrophoresis performed? Write its applications. (or)
    (b) Draw an analytical ultracentrifuge and explain.
14. (a) How is ESR useful in the study of free radicals? (or)
    (b) Give the principle of AAS. Write its working and applications.
15. (a) Explain radioactive decay. (or)
    (b) What is scintillation? Sketch a scintillation counter any explain.

PART C – (3x10=30)

Answer any THREE questions.

16. Define pH and how is pH of a solution measured by using glass electrode?
17. Explain the determination of molecular weight of a protein by gel permeation chromatography.
18. Describe the technique of southern blotting.
19. Sketch a spectrophotometer. Explain its working and applications.
20. Discuss the applications of radioisotopes in biology.

RCCSBC 2

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2016.

Part III - Biochemistry – Major

BIOCHEMICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. Name any four buffers.
2. State the second law of thermodynamics.
3. Name the carrier gases used in GC.
4. Write any tow applications of TLC.
5. Differentiate southern from western blotting.
6. Write the principle of immunoelectrophoresis.
7. What is primary and secondary ionization in mass spectrometry?
8. Name any four fluorochromes.
9. What are the units used to measure radioactivity?
10. What is the result of α emission?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Derive Henderson – Hassel batch equation(or)
    (b) Give the principle and applications of oxygen electrode.
12. (a) Write the principle and applications of ion exchange chromatography. (or)
    (b) How are amino acids separated by paper chromatography?
13. (a) Explain the separation of proteins by PAGE . (or)
    (b) What are the different types of centrifuges?
14. (a) Sketch a colorimeter and explain its working. (or)
    (b) Write the principle and applications of ESR.
15. (a) What is the principle of ARG? How is it performed? List its applications. (or)
    (b) How are α – rays measured by GM counter?

PART C – (3 × 10=30)

Answer any THREE questions.

16. How will you determine the pH of a solution?
17. What are the different components in HPLC? Explain its working and applications.
18. How is southern blotting performed? List its applications.
19. How are electrolytes determined by flame photometer?
20. Explain the measurement of gases by Warburg manometry.

RCCSBC 2

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry - Major

BIOCHEMICAL TECHNIQUES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Define the law of mass of action.
2. What is surface tension?
3. What is the principle of adsorption chromatography?
4. Name any two cation exchangers.
5. Why SDS is added to PAGE?
6. Bring out any two differences between preparative and analytical ultra centrifugation.
7. State beer – Lambert's Law.
8. What is the principle of MALDI–TOF?
9. Define curie.
10. List the advantages of scintillation counter.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Write the principle of oxygen electrode? Mention its uses. (or)
    (b) Derive Henderson – Hassel batch equation.
12. (a) How are enzymes purified by affinity chromatography? (or)
    (b) How are sugars separated by paper chromatography?
13. (a) Write the supporting materials used in electrophoresis. (or)
    (b) How is differential centrifugation performed?
14. (a) How is calibration curve constructed? (or)
    (b) Give the principle and applications of spectrofluorimetry.
15. (a) Explain radioactive decay. (or)
    (b) How are B-rays detected by scintillation counter?

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. How is pH of a solution measured by using glass electrode?
17. List the components in HPLC. Explain its working and applications.
18. How is PAGE performed? What are its applications?
19. Explain the structure predication using NMR.
20. Draw a Warburg respirometer and explain its working.

RCCSBC 4

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2014.

Part III - Biochemistry – Major

ENZYMES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Define turnover number.
2. What is Katal?
3. What is anion exchanger? Give an example.
4. What is sephadex?
5. What are enzyme activators?
6. Define V_{max}.
7. What is substrate inhibitor?
8. What are allosteric enzymes?
9. What are the enzymes increased in serum during myocardial infarction?
10. Mention any two uses of amylase.

PART B – (5x5=25)

Answer All Questions.

11.(a) Give an account on ribozymes. (or)

(b) Explain the role of coenzymes in enzyme action.

12. (a) Enumerate the criteria for purification of enzymes. (or)

(b) How will you separate an enzymes using electrophoresis?

13. (a) Discuss the factors influencing enzyme activity. (or)

(b) Give an account on allosteric inhibition.

14. (a) Enumerate the salient features of active site. (or)

(b) Explain the mechanism of bisubstrate reaction.

15.(a) Explain the diseases which can be diagnosed by estimating the serum enzyme levels. (or)

(b) Give an account on isoenzymes of lactate dehydrogenase.

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the nomenclature and classification of enzymes.
17. Describe the process involved in purification of enzymes using gel filtration chromatography.
18. Derive Michaelis-Menten equation and add a note on the significance of Km value.
19. Describe the mechanism of enzyme action.
20. Explain the mechanism involved in immobilization of enzymes and add a note on its application.

RCCSBC 4

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major

ENZYMES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What are metalloenzymes? Give two examples.
2. Define enzyme.
3. What is cation exchanger? Give an example.
4. What is molecular sieve?
5. How are enzymes inactivated?
6. Name two enzymes having acidic pH as optimum pH.
7. What is active site?
8. What is the mechanism of action of enzymes?
9. What are isoenzymes? Give two examples.
10. Write the support materials used in immobilized of enzymes.

PART B – (5x5=25)

Answer All Questions.

11. (a) Give an account on abzymes. (or)
    (b) Explain the properties of enzymes.
12. (a) How are enzymes separated by adsorption chromatography? (or)
    (b) Enumerate the criteria for purification of enzymes.
13. (a) How will you determine line weaver burg plot using Km value? (or)
    (b) Give an account on enzyme activators.
14. (a) Illustrate the process of enzyme-substrate complex formulation. (or)
    (b) Comment on allosteric enzyme.
15. (a) How are enzymes useful in medicine? (or)
    (b) Give an account of pyruvate dehydrogenase

PART C – (3x10=30)

Answer any THREE questions.

16. Describe the structure and functions of any two NAD and PLP.
17. Discuss the role of two dimensional gel electrophoresis in enzyme purifications.
18. Elaborate the types of enzyme inhibitions and add a note on its importance.
19. Describe the mechanism of enzyme catalysis.
20. Discuss the application of enzymes in textile and food industry.

RCCSBC 8

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

ENZYMES

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. List the general properties of enzymes.
2. What are metalloenzymes? Give two examples.
3. How are nucleic acids removed during enzyme purification?
4. What is the role of β–mercapto ethanol in enzyme purification?
5. What is the effect of activator and inhibitor on allosteric enzymes?
6. What is substrate analog? Give examples.
7. Define active site.
8. What is binding energy?
9. What are isoenzymes
10. How are muscle disorders diagnosed?

PART B – (5x5=25)

Answer All Questions.

11.(a) Enumerate the rules for naming the enzymes. (or)

(b) Write short note on abzymes.

12. (a) Give an account on organic solvent fractionation method. (or)

(b) How will you purify enzymes by centrifugation technique?

13. (a) Discuss the factors influencing enzyme activity? (or)

(b) Describe Line weaver – Burk equation.

14. (a) Explain Fischer's Lock and key hypothesis. (or)

(b) How does glutamate dehydrogenase act as allo stearic enzyme?

15.(a) Comment on pyruvate dehydrogenase. (or)

(b) Enlist the industrial applications of amylase.

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the structure and functions of thiamine pyrophosphate.
17. Describe the role of western blotting in enzyme purification.
18. Elaborate in detail the types of enzyme inhibition.
19. Describe the mechanism of enzyme action involving two substrates.
20. Explain the mechanism involved in enzyme immobilization and add a note on its applications.

RCCSBC 4

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2016.

Part III - Biochemistry – Major

ENZYMES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. What is abzymes?
2. Enzyme turnover – Define.
3. What are the preliminary steps of enzyme purification?
4. What is anionic exchanges? Give example.
5. What is meant by optimum pH?
6. Write the properties of inhibitors.
7. What is meant by catalytic site?
8. What is allosterism?
9. What are the applications of enzyme inmobilization?
10. Name the enzymes used in Textile and leather industries.

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Give the structure and functions of any two co-enzymes.(or)
    (b) Write a short note on Ribozymes.
12. (a) How will you purify enzymes based on electric charge? (or)
    (b) Write about purification of enzymes by molecular sieve chromatography.
13. (a) Write shortly about feed back inhibition. (or)
    (b) How will you determine km by Michaelis Menten plot?
14. (a) Explain Lock and Key model. (or)
    (b) Elaborate bisubstrate reaction.
15. (a) Write about LDH role in disease diagnosis. (or)
    (b) What is active site? Write the properties.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Write an essay on classification of enzymes.
17. Describe in detail to check the purity of enzyme.
18. Describe the types of enzymes inhibition in detail.
19. What is meant by enzyme catalysis? Explain it.
20. Discuss the methods of enzyme immobilization.

RCCSBC 4

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major

ENZYMES

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Explain the 4 digit number for an enzyme.
2. What are the units of enzyme activity?
3. What is one role of dialysis in isolation of an enzyme?
4. Mention the salting out mechanism.
5. Explain the relationship between arsenate and enzyme.
6. How do you treat the gout using allopurinol?
7. Define allosteric site of an enzyme.
8. Give a brief note on regulators.
9. What is swinging arm?
10. What are the fractions of CPK and their diagnostic uses.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Write the classification of enzyme. (or)
    (b) Discuss the ribozyme in detail.
12. (a) Write the role of gel chromatography in separation of enzyme. (or)
    (b) Describe the principle and functions of ion exchange chromatography.
13. (a) Explain non-competitive enzyme inhibition with the support of LB-plot. (or)
    (b) Elaborate the role of pH and temperature on enzyme activity.
14. (a) Elaborate the acid-base catalyst of an enzyme. (or)
    (b) Explain the bisubstrate reaction.
15. (a) Describe the chemistry of LDH. (or)
    (b) Explain the role of adsorption entrapment methods in immobilization of enzyme.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Write an essay on structure and functions of any four coenzymes.
17. Elaborate the instrumentation and applications of column chromatography.
18. Describe the M-M equation.
19. What are the models used to explain the mode of action of enzymes? Explain.
20. Discuss in detail on industrial applications of enzymes.

RCCSBC 5

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major

BIOENERGETICS AND METABOLISM

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

Define the following:

1. Oxidation.
2. Dehydrogenases.
3. Chemiosmotic Hypothesis.
4. Ionophores.
5. Glycolysis.
6. Anaplerosis.
7. Phospholipids.
8. Ketogenesis.
9. Deamination.
10. Porphyrins.

PART B – (5x5=25)

Answer All Questions.

11. (a) Write a note on high energy phosphates. (or)
    (b) Brief the endergonic and exergonic reactions.
12. (a) Explain the malate glycerol phosphate shuttle. (or)
    (b) What are uncouplers? Explain their mechanism of action.
13. (a) Write a note on glycogenesis. (or)
    (b) Explain the metabolism of galactose.
14. (a) Explain the catabolism of triglycerides. (or)
    (b) Write the ω oxidation of fatty acids.
15. (a) Write a note on glycogenic amino acids. (or)
    (b) How are pyrimidine nucleotides catabolized?

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the structure and functions of cytochrome P450 mono oxygenase system.
17. Explain the architecture and mechanism of electron transport chain.
18. Explain the reactions of TCA cycle.
19. Summarize the biosynthesis of various phospholipids.
20. Explain the biosynthesis and degradation of porphyrins.

RCCSBC 5

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

BIOENERGETICS AND METABOLISM

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Exergonic reaction
2. High energy phosphates.
3. Oxidative phosphorylation.
4. Uncouplers.
5. Glycogenolysis.
6. Galactosemia
7. Triglycerides
8. Lipoproteins.
9. Transamination
10. Ketogenic amino acids.

PART B – (5x5=25)

Answer All Questions.

11.(a) Write a note on free energy. (or)

(b) Brief on oxygenase and dehydrogenases.

12. (a) Write a note on electron transport chain. (or)

(b) Explain the mechanism of action of Ionophores.

13. (a) Explain the metabolism of fructose. (or)

(b) Write a note on anaplerotic reactions.

14. (a) How is triglyceride biosynthesized?. (or)

(b) Explain the α–oxidation of fatty acids.

15.(a) Explain the reactions of urea cycle. (or)

(b) Explain the biosynthesis of bile pigments.

PART C – (3x10=30)

Answer any THREE questions.

16. Write the structure and functions of ATP.
17. Explain the various transport systems across mitochondria.
18. Explain the reactions of glycolysis.
19. Summarize the biosynthesis and utilization of ketone bodies.
20. Discuss the biosynthesis of purine nucleotides.

RCCSBC 5

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major

BIO ENERGETICS AND METABOLISM

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

Define the following:

1. Oxidation reaction.
2. Entropy.
3. Electron transport chain.
4. Ionophores.
5. Anaplerosis.
6. Glycogenolysis.
7. Ketogenesis.
8. Lipoproteins.
9. Porphyrins.
10. Deamination.

PART B – (5 × 5=25)

Answer All Questions.

11. (a)Write a note on cytochrome P_{450}monooxygenases.(or)
    (b) How are endergonic and exergonic reactions coupled.
12. (a) Explain the Malate shuttle system. (or)
    (b) Write the mechanism of coupling electron transport and oxidative phosphorylation.
13. (a) Explain the metabolism of fructose. (or)
    (b) How is pyruvate converted to acetyl coA?
14. (a) How are fatty acids biosynthesized? (or)
    (b) Explain the formation of bile salts from cholesterol.
15. (a) Write a note on ketogenic amino acids. (or)
    (b) Brief in transamination reactions.

PART C – (3 × 10=30)

Answer any THREE questions.

16. What are high energy phosphates? Write the role of ATP as a high energy phosphate.
17. What are uncouplers? Explain their mechanism of action with examples.
18. Discuss the events in gluconeogenesis.
19. Elaborate the β - oxidation of fatty acids.
20. Explain the degradation of purine and pyrimidine nucleotides.

RCCSBC 5

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major

BIOENERGETICS AND METABOLISM

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

Define the following:

1. Oxidation.
2. Dehydrogenases.
3. Chemiosmotic Hypothesis.
4. Ionophores.
5. Glycolysis.
6. Anaplerosis.
7. Phospholipids.
8. Ketogenesis.
9. Deamination.
10. Porphyrins.

PART B – (5x5=25)

Answer All Questions.

11. (a) Write a note on high energy phosphates. (or)
    (b) Brief the endergonic and exergonic reactions.
12. (a) Explain the malate glycerol phosphate shuttle. (or)
    (b) What are uncouplers? Explain their mechanism of action.
13. (a) Write a note on glycogenesis. (or)
    (b) Explain the metabolism of galactose.
14. (a) Explain the catabolism of triglycerides. (or)
    (b) Write the ω oxidation of fatty acids.
15. (a) Write a note on glycogenic amino acids. (or)
    (b) How are pyrimidine nucleotides catabolized?

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the structure and functions of cytochrome P450 mono oxygenase system.
17. Explain the architecture and mechanism of electron transport chain.
18. Explain the reactions of TCA cycle.
19. Summarize the biosynthesis of various phospholipids.
20. Explain the biosynthesis and degradation of porphyrins.

RCCSBC 5

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

BIOENERGETICS AND METABOLISM

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

11. Exergonic reaction
12. High energy phosphates.
13. Oxidative phosphorylation.
14. Uncouplers.
15. Glycogenolysis.
16. Galactosemia
17. Triglycerides
18. Lipoproteins.
19. Transamination
20. Ketogenic amino acids.

PART B – (5x5=25)

Answer All Questions.

11.(a) Write a note on free energy. (or)
(b) Brief on oxygenase and dehydrogenases.

12. (a) Write a note on electron transport chain. (or)
(b) Explain the mechanism of action of Ionophores.

13. (a) Explain the metabolism of fructose. (or)
(b) Write a note on anaplerotic reactions.

14. (a) How is triglyceride biosynthesized?. (or)
(b) Explain the α–oxidation of fatty acids.

15.(a) Explain the reactions of urea cycle. (or)
(b) Explain the biosynthesis of bile pigments.

PART C – (3x10=30)

Answer any THREE questions.

16. Write the structure and functions of ATP.
17. Explain the various transport systems across mitochondria.
18. Explain the reactions of glycolysis.
19. Summarize the biosynthesis and utilization of ketone bodies.
20. Discuss the biosynthesis of purine nucleotides.

RCCSBC 5

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major

BIO ENERGETICS AND METABOLISM

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

Define the following:

1) Oxidation reaction.
2) Entropy.
3) Electron transport chain.
4) Ionophores.
5) Anaplerosis.
6) Glycogenolysis.
7) Ketogenesis.
8) Lipoproteins.
9) Porphyrins.
10) Deamination.

PART B – (5 × 5=25)

Answer All Questions.

11. (a)Write a note on cytochrome P_{450}monooxygenases.(or)
    (b) How are endergonic and exergonic reactions coupled.
12. (a) Explain the Malate shuttle system. (or)
    (b) Write the mechanism of coupling electron transport and oxidative phosphorylation.
13. (a) Explain the metabolism of fructose. (or)
    (b) How is pyruvate converted to acetyl coA?
14. (a) How are fatty acids biosynthesized? (or)
    (b) Explain the formation of bile salts from cholesterol.
15. (a) Write a note on ketogenic amino acids. (or)
    (b) Brief in transamination reactions.

PART C – (3 × 10=30)

Answer any THREE questions.

16. What are high energy phosphates? Write the role of ATP as a high energy phosphate.
17. What are uncouplers? Explain their mechanism of action with examples.
18. Discuss the events in gluconeogenesis.
19. Elaborate the β - oxidation of fatty acids.

20. Explain the degradation of purine and pyrimidine nucleotides.

B.Sc Degree Examination November 2015 RSBE5:3

Part III - Skill Based Elective

Herbs and Drug Action

Time -3 hrs Max Marks-75 marks

Section A(10X2=20)

Answer all the questions

1. Use of *Withaniasomnifera.*
2. Rheumatic Arthritis
3. Sources of allergens.
4. Mutagens.
5. Alkaloids.
6. Anticancer drugs.
7. Chemical nature of allergens.
8. Disorder of drug metabolism.
9. Drugs acting on brain.
10. Depressants.

Section B (5X5=25)

Answer all the questions

11.a. Describe the types and sources of allergens (or)
11.b. Explain the cardiac drugs of plant origin.
12.a. Describe the respiratory disorders(or)
12.b.Write a note on anti-inflammatory drugs.
13.a.Describe the various factors affecting blood pressure(or)
13.b. Briefly describe on psychoactive drugs.
14.a.Define hypertension and explain the reasons for hypertension.(or)
14.b. Explain the medicinal Plants used for various ailments.
15.a. Describe the respiratory disorders.(or)
15.b. Describe a note on common cold.

Section C(3X10=30)

Answer any three questions

16. Describe the mechanism of action of anticoagulant drug.
17. Explain the role of medicinal plants with examples.
18. Explain various herbal remedies for ailments.
19. Explain plant derived anticancer drugs.
20. Explain on hallucinogens.

B.Sc Degree Examination April 2015 RSBE 5:3

Part III - Skill Based Elective

Herbs and Drug Action

Time -3 hrs Max Marks-75 marks

Section A(10X2=20)

Answer all the questions

1. Allergen.
2. Mutagen
3. Asthma.
4. Lectins.
5. Psychoctive drugs.
6. *Withaniasomnifera*.
7. Arthritis.
8. Blood pressure.
9. Memory stimulants.
10. Sources of allergy.

Section B (5X5=25)

Answer all the questions

11.a. Describe the drugs for dissolving kidney stones. (or)

11.b. Explain allergic reactions.

12.a. Describe Pulmonary disorders(or)

12.b.Write a note on Pseudostem.

13.a.Describe the drugs acting on nervous system(or)

13.b. Briefly describe on any two respiratory disorders.

14.a.Write a note on chemical nature of allergens.(or)

14.b. Explain the anticancer activity of *catharanthusroseus*.

15.a. Describe Hallucinogens.(or)

15.b. Describe drugs for urogenital disorders.

Section C(3X10=30)

Answer any three questions

16. Describe the mechanism of action of anticoagulants.
17. Explain the role of Cell modifiers.
18. Explain the mechanism of action of psychoactive drugs.
19. Explain plant derived drugs for cardiovascular disease.
20. List out and explain the drugs used as depressants.

RCCSBC 7

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2014.

Part III – Biochemistry – Major

MICROBIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. What are Heterocysts?
2. What is differential media? Give two examples.
3. Define the following terms: Hypha and Mycelium.
4. Define Pasteurization.
5. Mention any two factors of food poisoning.
6. What is whey?
7. What is virulence? How it is measured?
8. What are opportunistic pathogens?
9. What is resolving power of a microscope?
10. What is meant by numerical apertures?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Give an account of the economic importance of Fungi. (or)
    (b) Explain the lytic life cycle of Bacteriophage.
12. (a) With a neat and labeled sketch explain the different phases of a typical growth curve. (or)
    (b) Give an account of the salient features of Cyanobacteria.
13. (a) What are the principles involved in food preservation? (or)
    (b) Explain the sources of contamination of milk.
14. (a) What are the reservoirs of infection? Mention the various types of infection. (or)
    (b) Explain the mechanism of action of Exotoxin.
15. (a) Compare the limitations and uses of electron microscope with light microscope. (or)
    (b) Explain the principle and applications phase contrast microscope.

PART C – (3 × 10=30)

Answer any THREE questions.

16. How is pure culture obtained? Explain the different methods used.
17. Explain the classification and characteristics of virus.
18. Discuss the different methods of preservation of milk.
19. Discuss the different methods of sterilization and disinfection used to control microorganisms.
20. Describe the principle, method of operation and applications of scanning and transmission electron microscope.

RCCSBC 7

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major

MICROBIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What are mordant? Give an example.
2. What are photoautotrophs and photo heterotrophs.
3. What is Lysogeny?
4. Name any two animal virus.
5. Mention any two causes of food spoilage.
6. What is whey? Mention its composition.
7. Distinguish between sterilization and disinfection.
8. What are ectoparasites and endoparasites?
9. What is SEM and TEM?
10. Define numerical aperture of the lens system.

PART B – (5x5=25)

Answer All Questions.

11. (a) Give the salient features and their systematic position of archebacteria. (or)
    (b) Write briefly about Bacterial growth curve.
12. (a) Briefly classify algae with a few important characters and its biological importance. (or)
    (b) Enumerate the key characteristics and structure of bacteriophage.
13. (a) Write about the bacterial standard of raw milk. (or)
    (b) Explain symptoms and causative agents of staphylococcus poisoning.
14. (a) Enumerate the factor influencing infection. (or)
    (b) Write a short note on endotoxin.
15. (a) Give the principle of dark field microscope. (or)
    (b) Describe the principle and applications of fluorescent microscope.

PART C – (3x10=30)

Answer any THREE questions.

16. Give an account of physical and chemical methods of controlling bacterial growth.
17. Describe the morphology and cultivation of yeast cells.
18. Give an account on the types of food spoilage and causative organisms that may be encountered in any five of common foods.
19. Write a detailed account on the Anti-microbial agents act in controlling microbes.
20. Describe the structure principle and applications of bright field compound microscope.

RCCSBC 7

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

MICROBIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Brief about the structure and role of pili.
2. Briefly explain Auxotrophs and Osmotrophs.
3. What are known as Prokaryotic and Eukaryotic algae?
4. Distinguish Rhizopus and Mucor.
5. What are the sources of contamination of milk?
6. What is meant by whey? Give its composition.
7. What is known as epidemiology?
8. What are the common modes of transmission of infectious diseases?
9. What factors affect the resolution of a light microscope?
10. Explain the phenomenon of immune-fluorescent.

PART B – (5x5=25)

Answer All Questions.

11.(a) Describe the bacterial growth curve. (or)

(b) Give a brief account on the structure and economic importance of cyanobacteria.

12. (a) Briefly classify algae with a few important characters of the group. (or)

(b) Describe the chemical structure and composition of virus.

13. (a) Write briefly on the preparation of butter and cheese. (or)

(b) Explain the various biochemical changes occurring on food spoilage.

14. (a) What are the reservoirs of infection? Explain. (or)

(b) Explain in brief the physical methods of sterilization.

15.(a) What is meant by wet mount technique? What are its limitations? (or)

(b) Compare the limitations and uses of scanning and transmission electron microscope.

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the different nutritional requirements and types of microorganisms. Add a role on the various types of special media used in microbiological studies.
17. Describe the structure and life cycle of bacteriophage.
18. Give an account of pasteurization of milk and various methods of preservation of milk.
19. Describe in detail on characteristics, mode of action and functions of exotoxide and endotoxide.
20. Discuss on the principle, types, merits and demerits of electron microscope.

RCCSBC7

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2016

Part III - Biochemistry - Major

MICROBIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Write any four characteristics of cyanobacteria.
2. Give the functions of Pili.
3. Comment on medicinal value of algae.
4. List the anti-fungal agents.
5. What is meant by pasteurization?
6. Write any four characteristics of cyanobacteria.
7. What are the various types of infections?
8. Write the common modes of transmission of infectious diseases.
9. Mention the limitations of electron microscope.
10. Define resolving power.

PART B – (5x5=25)

Answer All Questions.

11. (a) Explain bacterial reproduction. (or)
    (b) Describe the methods of maintenance of culture.
12. (a) Write a note on classification of fungi. (or)
    (b) Write the characteristics and structure of bacteriophage.
13. (a) What is food preservation? Write the methods. (or)
    (b) Write a short note on dairy products.
14. (a) Explain bacterial reproduction. (or)
    (b) Describe the methods of maintenance of culture.
15. (a) Explain the structure of bright-field light microscope. (or)
    (b) What is meant by hanging drop technique? Write note on it.

PART C – (3x10=30)

Answer any THREE questions.

16. Write an essay on the types of culture medium.
17. Discuss the classification of algae in detail.
18. Write a short note on :
    (a) Biochemical changes of food spoilage
    (b) Staphylococcal poisoning.
19. What is disinfection? Discuss the disinfectants.
20. With neat sketch explain electron microscope.

RCCSBC 6

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2014.

Part III - Biochemistry – Major

MOLECULAR BIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What is topoisomerases?
2. Mention the role of polymerases.
3. What is transcription?
4. Indicate the role of RNA polymerase.
5. Define Cistron.
6. Comment on Wobble hypothesis.
7. Give a brief note on lace operons.
8. What is *Trp* operon?
9. Define plasmids.
10. Mention the role of restriction endonucleases.

PART B – (5x5=25)

Answer All Questions.

11.(a) Explain DNA damage and repair. (or)

(b) Give a brief account on DNA replication.

12. (a) Write about the inhibitors of RNA synthesis. (or)

(b) Comment on reverse transcription.

13. (a) List down the major features of genetic code. (or)

(b) Indicate the inhibitors of protein synthesis.

14. (a) Define and discuss operon hypothesis. (or)

(b) Give a brief note on enzyme induction and repression.

15.(a) Write about the splicing of DNA molecules. (or)

(b) "Cosmid as vectors" – Discuss.

PART C – (3x10=30)

Answer any THREE questions.

16. DNA as the genetic material. Discuss.
17. Discuss about the post transcriptional modification of tRNA and rRNA.
18. Explain the structure of prokaryotic ribosomes.
19. Give an account on gene expression.
20. Highlight the applications of genetic engineering in medicine.

RCCSBC 6

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

MOLECULAR BIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Mention the role of topoisomerases.
2. State the role of ligase.
3. What is one gene one enzyme hypothesis?
4. What is mutation?
5. Indicate the role of RNA polymerase.
6. What is meant by reverse transcription?
7. Comment on lac operon.
8. Give a short note on trp operon.
9. Define plasmid.
10. Define cosmid.

PART B – (5x5=25)

Answer All Questions.

11.(a) Explain in briefly about DNA replication. (or)

(b) Briefly describe the DNA damage and repair.

12. (a) Comment on the inhibitors of RNA synthesis. (or)

(b) Mention the stages of transcription.

13. (a) Enumerate the major features of genetic code and wobble hypothesis. (or)

(b) Explain the structure of gene.

14. (a) Give a brief account on operon hypothesis.. (or)

(b) Discuss briefly about enzyme induction and repression.

15.(a) Write down the applications of genetic engineering in medicine. (or)

(b) Bring out the applications of restriction endonucleases.

PART C – (3x10=30)

Answer any THREE questions.

16. Explain DNA as the genetic material.
17. Describe the post-transcriptional modification of tRNA and rRNA.
18. Explain the structure of prokaryotic and eukaryotic ribosomes.
19. Give an account on prokaryotic transcriptional regulation.
20. Write an essay on genetic engineering.

RCCSBC 6

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major

MOLECULAR BIOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Mention the role of DNA polymerase I.
2. What are Okazakifragments?
3. Mention the different types of RNA.
4. What is reverse transcription?
5. Define mutton.
6. What is one gene one enzyme hypothesis?
7. Comment on trip operon.
8. How is the lac operon an example of an inducible operon?
9. What are plasmids?
10. Define gene cloning.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) What is meant by rolling circle form of DNA replication, explain with examples. (or)
    (b) Discuss about recombination repair mechanism.
12. (a) What are post translational modification? Give some examples. (or)
    (b) Explain the process of transcription with the help of a labeled diagram.
13. (a) Differentiate the structure of prokaryotic and eukaryotic ribosomes. (or)
    (b) What are the basic characteristics of genetic code?
14. (a) Write a note on lac operon. (or)
    (b) Explain attenuation.
15. (a) Give an account on restriction endonuclease and their applications. (or)
    (b) Give an account on blunt end ligation method of DNA splicing.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Explain in detail about the DNA replication mechanism.
17. Write in detail about the post transcriptional modification of mRNA.
18. Describe in detail about the translation in prokaryotes.
19. Explain the positive and negative regulation of gene expression in lac operon.
20. What are the different types of cloning viral vectors used in genetic engineering? Explain.

MBEBC 1

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2014.

Part III - Biochemistry – Major Based Elective

PHARMACEUTICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. How does morphine act as a stimulant?
2. What is drug potency?
3. Define drug metabolism.
4. Mention any two drug metabolizing enzymes.
5. Define chemotherapy.
6. Give two examples of antimalarials.
7. What is drug intolerance?
8. Name any two narcotic agents.
9. What are gaseous anesthetics?
10. Define antiseptics.

PART B – (5x5=25)

Answer All Questions.

11.(a) Outline the classification of drugs based on the sources. (or)

(b) How are drugs absorbed?

12. (a) Write short notes on sulphate conjugation. (or)

(b) Discuss the role of cytochrome P_{450} in drug metabolism.

13. (a) Explain the mode of action of antiviral substances. (or)

(b) Write short notes on drug resistance.

14. (a) Give an account on allergy. (or)

(b) Comment on drug abuse.

15.(a) How does cocaine act as an local anesthetics? (or)

(b) Discuss in detail the uses of phenol and its derivatives as disinfectants.

PART C – (3x10=30)

Answer any THREE questions.

16. Describe in detail the distribution and elimination of drugs.
17. Discuss in detail the phase I reactions of drug metabolism.
18. Explain in detail the biochemical mode of action of chloramphenicol.
19. Describe in detail the biological effects of drug addiction.
20. Elucidate the role of organic pharmaceutical as preservatives.

MBEBC 1

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major Based Elective

PHARMACEUTICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Name the drugs prepared from the animals.
2. What do you meant by drug redistribution?
3. What is microsome?
4. Write short notes on UGT.
5. Name the malaria causing parasites.
6. Draw the structure of penicillin.
7. How do you measure the hypersensitivity of a drug?
8. Mention the universal antidote.
9. Write short notes on cocaine.
10. Name any two disinfectants.

PART B – (5x5=25)

Answer All Questions.

11.(a) Explain about drug absorption and factors affecting it from intestine. (or)

(b) Mention the role of kidney in elimination of drug.

12. (a) List out and discuss on non-microsomal enzymes on drug metabolism. (or)

(b) Write short notes on glutathione and glycine conjugation reaction of drug.

13. (a) Write the structure and mode of action of chloramphenicol. (or)

(b) Elaborate the types and functions of plant alkaloids.

14. (a) Mention the allergic reactions. (or)

(b) Write short notes on drug addiction.

15.(a) List out the necessities of local anaesthetics. (or)

(b) How do you use organic as preservatives and food additives?

PART C – (3x10=30)

Answer any THREE questions.

16. Write an essay on enteral and parenteral route of drug administration.
17. Elaborate on the non-synthetic reactions of drug metabolism.
18. Bacterial drug resistance is the headache of pharmacist. Explain.
19. Give an account on socio economic and biological effect of drug.

MBEBC 1

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major Based Elective

PHARMACEUTICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Name any two mineral drugs.
2. What is H_2 – blockers?
3. Write the structure of glutathione.
4. What is a microsome?
5. Mention any two drugs involved in inhibition of viral protease enzyme.
6. Comment on β - lactamase.
7. What is drug abuse?
8. Mention the scheduled drug.
9. Write the mode of action of chloroform.
10. Name any two intravenous anaesthetics.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Explain the various types of injection used to administrate the drug. (or)
    (b) Write the factors involved in drug absorption.
12. (a) Give an account on the families and classification of CYP. (or)
    (b) Elaborate liver first pass mechanism.
13. (a) Explain the biochemical mechanism of drug resistance. (or)
    (b) List out the alkaloids involved in treatment of disease. Explain the mechanism.
14. (a) What is an universal antidote? Explain its preparation and uses. (or)
    (b) Discuss the drug addiction and the treatment for it.
15. (a) Differentiate the antiseptic and disinfectant. (or)
    (b) Explain the role of preservatives and food addiction in a pharmaceutical industry.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Write an essay on factors influencing drug distribution and redistribution.
17. Describe in detail about Phase – II drug metabolism.
18. Elaborate on the types and mode of action of antiviral drugs.
19. What are allergic reactions caused by drugs? Explain.
20. Discuss in detail about the types and functions of general anaesthetics.

RSBE 5:2

B.Sc Degree Examination November 2015
Part III - Skill Based Elective
Pharmacognosy

Time -3 hrs Max Marks-75 marks

Section A(10X2=20)

Answer all the questions

1. Siddha.
2. Scope of Pharmacognosy
3. Tincture of iodine.
4. Lotion.
5. Secondary metabolites.
6. Drug adulteration.
7. Organoleptic properties of ginger.
8. Suture.
9. Medicinal uses of neem.
10. Pharmacognosy.

Section B (5X5=25)
Answer all the questions

11.a. Describe Homeopathy. (or)
11.b. Classify crude drugs.
12.a. Describe the chemistry of drug action(or)
12.b.Write a note on Drug evaluation and its types.
13.a.Describe the preparation of suppositories(or)
13.b. Briefly describe the preparation of herbal oil.
14.a.Write a note on organoleptic properties and medicinal uses of garlic.(or)
14.b. Explain the medicinal uses of bark and leaf containing drugs..
15.a. Describe analytical pharmacognosy.(or)
15.b. Describe the biological testing of herbs for drug preparation.

Section C(3X10=30)
Answer any three questions

16. Describe the History of Pharmacognosy.
17. Explain the Pharmacological Classification of crude drugs.
18. Explain any two preparation of crude drug.
19. Explain on surgical fibres.
20. Define adulteration and explain the methods of adulteration with examples.

B.Sc Degree Examination April 2015 **RSBE 5:2**

Part III - Skill Based Elective

Pharmacognosy

Time -3 hrs Max Marks-75 marks

Section A(10X2=20)

Answer all the questions

1. Uses of Castor oil.
2. Crude drug.
3. Unani.
4. Pharmacognosy.
5. Chemical structure of any one drug.
6. Uses of neem.
7. Medicinal plant.
8. Taxonomy.
9. Uses of Amla.
10. AYUSH.

Section B (5X5=25)

Answer all the questions

11.a. Describe the Classification of crude drugs . (or)

11.b. write a short note on herbal oils.

12.a. Describe the chemistry forany two drugs(or)

12.b.Describe the scope of Pharmacognosy.

13.a.Write a short note on Ayurveda(or)

13.b. Describe Crude drugs and its evaluation.

14.a.Explainthe preparation of infusion and Decoction.(or)

14.b. Explain on surgical fibres.

15.a. Describe insect repellent plant drugs.(or)

15.b. Describe drug adulteration.

Section C(3X10=30)

Answer any three questions

16. Describe the History of Pharmacognosy.
17. Describe the History of Siddha.
18. Explain surgical dressings.
19. Explain organoleptic character of bark, flower and bud of Neem.
20. Explain Secondary Metabolites.

RCCSBC 8

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2014.

Part III - Biochemistry – Major

BASIC BIOTECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What is a bioreactor? List any two bioreactors.
2. List any four organic nitrogen sources used in media formulation.
3. What is immobilization of cells? What are the different methods used in immobilization?
4. Write the advances of fermented foods.
5. What are methanogens? Name any two.
6. Write the composition of sewage.
7. What are restriction endonucleases? Name any two.
8. What is blue white colony screening?
9. What is gene knockout? Write its applications.
10. List the goals of production of transgenic plants.

PART B – (5x5=25)

Answer All Questions.

11.(a) Sketch a microbial growth curve and explain. (or)

(b) Explain the methods used in socio-liquid separation.

12. (a) Describe the applications of immobilized enzymes. (or)

(b) Explain the production process of cheese.

13. (a) What is bioleaching? Write the direct and indirect biobleaching methods. (or)

(b) Explain the anaerobic digestion of sludge.

14. (a) Elaborate on the steps involved in gene cloning.. (or)

(b) Differentiate the different types of restriction endonucleases.

15.(a) How is microinjection method useful in transgenic animal production? (or)

(b) Explain with a diagram T-DNA transfer and its integration in to a host plant cell genome.

PART C – (3x10=30)

Answer any THREE questions.

16. Discuss the different types of bioreactors.
17. How is amylase produced in an industry?
18. Explain the process of methanogenesis.
19. How are recombinants selected and screened?
20. Discuss the human genome project.

RCCSBC 8

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

BASIC BIOTECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. List the four phases of bacterial growth.
2. Differentiate fermentors from bioreactor.
3. What is immobilization of cells?
4. Bring out the differences between α-amylase and β-amylase.
5. Name the types of filters used in secondary treatment of sewage.
6. What is biomining?
7. Name any four cloning vectors.
8. What is blue-white colony screening?
9. Give the reasons for developing transgenic plants.
10. Write the advantages and limitations of agrobacterium mediated transformation.

PART B – (5x5=25)

Answer All Questions.

11.(a) Sketch a bacterial growth curve and explain. (or)

(b) How is media formulated for industrial fermentation?

12. (a) Explain the applications of immobilized enzymes. (or)

(b) How is cheese produced?

13. (a) How are metals recovered by the use of microbes? (or)

(b) How is ethanol industrially produced?

14. (a) What are the steps in gene cloning? (or)

(b) Explain the technique of micro injection.

15.(a) Write the applications of rDNA agriculture. (or)

(b) Explain the embryonic stem cell methods produce transgenic mice.

PART C – (3x10=30)

Answer any THREE questions.

16. Sketch a bioreactor and explain its operation.
17. How is amylase produced in industry?
18. Explain the sewage treatment.
19. How are recombinants screened?
20. Discuss the applications of transgenic plants.

RCCSBC 8

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major

BASIC BIOTECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What is a bioreactor?
2. Differentiate continuous culture from batch culture.
3. List the advantages of fermented foods.
4. Name any two organisms involved in cheese production.
5. Write any two methanogens.
6. Write any two organisms involved in cleaning of oil spice.
7. What are restriction endonucleases?
8. What is α-complementation?
9. What are the reasons for developing transgenic plants?
10. Write the physical methods used to transfer genes in plants.

PART B – (5x5=25)

Answer All Questions.

11.(a) What are the different phases in microbial growth? Explain. (or)

(b) With a neat diagram explain the working of a bioreactor.

12. (a) What are the different methods of immobilization. (or)

(b) How is bread prepared?

13. (a) What is bioremediation? How are oil spills cleared? (or)

(b) Define biomining. Explain direct and indirect leaching.

14. (a) Sketch pBR322 and explain. (or)

(b) How are recombinants selected based on blue white colony screening?

15.(a) Write the steps in HGP. (or)

(b) How is a transgenic plant developed?

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the different steps in downstream processing.
17. What is fermentation? Describe the different fermented milk products.
18. How is methane generated?
19. Explain electroporation and microinjection techniques.
20. Discuss the applications of rDNA technology in animal husbandry.

RCCSBC 8

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major

BASIC BIOTECHNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. Describe the Lag phase of microbial growth curve.
2. Name any two methods of pure culture.
3. What do you meant by biosensor?
4. Name any four bakery items produced by fermentation process.
5. Define biomass.
6. Write any two uses of methane.
7. Define microbial vectors.
8. Explain the hereditary.
9. Differentiate traditional and Bt – cotton.
10. What is livestock?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Differentiate the Batch and continuous culture.(or)
    (b) Explain the downstream processing.
12. (a) Write short note on fermented milk product. (or)
    (b) List out the applications of amylase in food industry.
13. (a) Discuss on oil spills cleanup by microorigination. (or)
    (b) Mention the method of domestic waste water management.
14. (a) How would you screen recombinants?. (or)
    (b) Explain briefly about the types of endonucleases.
15. (a) Write the application of transgenic animals. (or)
    (b) How many stages of human genome project were completed till date? Explain.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Give the out sketch and operation process of a bioreactor.
17. Explain the methods of immobilization of cell.
18. Write an essay on production of ethanol from biomass.
19. Elaborate on methods available to transfer a gene to cell.
20. How do you develop a transgenic plant? Explain the technique?

RCCSBC 9

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major

CLINICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Name the chemicals present in Van den Bergh reagent.
2. Serum albumin is not excreted by normal nephron. Why?
3. Mention the metabolic disorder of fructosuria.
4. Name any four hypoglycemic agents.
5. What is a atherosclerosis?
6. Write about lipoprotein lipase.
7. Give a brief account on orotic aciduria.
8. Write short notes on porphyrias.
9. What is LATS?
10. Mention the pathogenicity of HIV.

PART B – (5x5=25)

Answer All Questions.

11. (a) Write short notes on the method of gastric juice analysis. (or)
    (b) List out the abnormal constituents of urine and their chemical analysis.
12. (a) Give an account on glycogen storage disease. (or)
    (b) Explain the structure and functions Insulin receptor.
13. (a) Explain about fatty liver. (or)
    (b) Write a short note on transport of lipoprotein.
14. (a) Mention the protein malnutrition. (or)
    (b) What is hyperuricemia? Mention the metabolic defect in it.
15. (a) Discuss about types and clinical disorder of haemophilia. (or)
    (b) Explain the menstrual cycle.

PART C – (3x10=30)

Answer any THREE questions.

16. Write an essay on types and biochemical abnormalities of Jaundice.
17. What are primary and secondary complex disorders of diabetes mellitus? Explain.
18. Elaborate the hypo and hyper cholesterolemia.
19. Explain any five metabolic disorders of amino acids.
20. Discuss in detail about hyper and hypothyroidism.

RCCSBC 9

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major

CLINICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Mention any two reasons which cause achlorhydria.
2. Define glomerular nephritis.
3. What are ketone bodies?
4. Write the structure of Insulin.
5. What is the relationship between thyroid hormone and cholesterol metabolism?
6. Write short notes on Coronary Heart Disease.
7. List out the factors that are causing hypoalbuminemia.
8. Explain the mode of action of allopurinol.
9. Mention the flight or fight function.
10. Give a short note on prothrombin.

PART B – (5x5=25)

Answer All Questions.

11.(a) Explain briefly about the estimation of HCI in gastric juice. (or)

(b) Write a note on inulin clearance test.

12. (a) What are the complications or diabetes mellitus? Explain. (or)

(b) Give an account on hypoglycemia.

13. (a) Write the factors that causing fatty liver. (or)

(b) Elaborate the type-I and type-II hyperlipoproteinemia.

14. (a) Discuss about porphyrias. (or)

(b) Write short note on orotic aciduria and Leshnyhan syndrome.

15.(a) Discuss the clinical features of estrogen and testosterone. (or)

(b) Write note on hypo and hyper thyrodism.

PART C – (3x10=30)

Answer any THREE questions.

16. How do you explain the functions of liver using serum protein values? Write the procedure to estimate the total protein.
17. Write an essay on management of diabetes mellitus.
18. Explain in detail about the types and pathophysiology of hypolipoproteinemia.
19. Elaborate the types, assay and clinical disorder of Gout.
20. Give a detailed account on physiology, hormones and disorders of pituitary gland.

RCCSBC 9

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major

CLINICAL BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. Mention the device used to collect gastric juice.
2. Explain the principle of Hay's test.
3. What are ketone bodies?
4. Mention the McArdel disease.
5. A patient's lab report is 30mg/100dl of HDL and 152mg/dl of LDL interpret.
6. Define Angiogram.
7. List out the porphyries.
8. Mention the enzyme deficiency to cause orotic aciduria.
9. What is the relationship between AIDS and TB?
10. Write briefly on goiter.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Illustrate the proton pumping system and synthesis of HCI. (or)
    (b) Justify that Benedict's qualitative test is a semi quantitative test.
12. (a) What are the complications of hypoglycemia? (or)
    (b) Explain glycogen storage diseases.
13. (a) Describe the electrophoretic and centrifugation pattern of lipoprotein. (or)
    (b) Elaborate on abetalipoproteinemia.
14. (a) Explain the metabolic disorder anddiagnosis of alkaptonuria. (or)
    (b) What are the types of porphyrias? Explain.
15. (a) Give an account on clinical features of hemophilia. (or)
    (b) List out and explain the disorder of pituitary.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Elaborate on the types, causes, and diagnosis of Jaundice.
17. How would you prepare a patient for oral GTT and complete it in you laboratory?
18. Explain the familial hyper lipoproteinemia type II and arteriosclerosis.
19. Write an essay on types, cause and diagnosis and gout.
20. Describe in detail on the disorders of sex hormone.

MBEBC 2

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major Based Elective

ENDOCRINOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. Give the names of peptide hormones.
2. Write the structure and functions of IP_3.
3. Write ay four points about thyroglobulin.
4. What is hypokalemia?
5. Write the difference between diabetes mellitus and diabetes insipidus.
6. List out the POMC family.
7. Write the relationship between insulin and glycogen synthase.
8. Mention the names of somatostatin.
9. What are the three zones of adrenal medulla?
10. Write short notes on Addison's disease.

PART B – (5x5=25)

Answer All Questions.

11. (a) Explain the mode of action of calcium and calmodulin.
    (b) Describe the mechanism of actionofsteroid hormone.
12. (a) Elaborate on the Rickets and Osteomalacia.
    (b) Give an account on Hashimoto's thyroiditis.
13. (a) Give an account on functions and clinical disorders of MSH.
    (b) List out and explain hypothalamic releasing factors.
14. (a) Mention thestructure and functions of Insulin receptors.
    (b) Explain the role of glucagon on carbohydrate metabolism.
15. (a) Write the structure and functions ofAndrogens.
    (b) Describe about biosynthesis and functions ofglucocorticoids.

PART C – (3x10=30)

Answer any THREE questions.

16. Write an essay on structure and mode of action of G-protein coupled receptor.
17. Elaborate the biological functions and disorder of parathormone.
18. Describe about the disorders of growth hormones.
19. Give a detail notes on diabetes mellitus.
20. Explain in detail about the abnormalities of adrenal cortical hormones.

MBEBC 2

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major Based Elective

ENDOCRINOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. Inositol phosphate.
2. Adenylate cyclase.
3. Rickets.
4. Osteomalacia.
5. Endorphins.
6. MSH
7. Glycoprotein.
8. Somatostatin.
9. Glucocorticoids.
10. Androgens.

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Indicate the role of protein kinase.(or)
    (b) Highlight the role of tyrosine.
12. (a) Briefly explain the regulation of calcium metabolism. (or)
    (b) Give a brief note on hyper and hypercalcemia.
13. (a) Explain the biological effects of oxytocin. (or)
    (b) Comment on lactogenic hormones.
14. (a) Comment on the mechanism of action of glucagon. (or)
    (b) Narrate the mechanism of action of pancreatic polypeptide.
15. (a) Explain the synthesis of mineral corticoids. (or)
    (b) Give a brief note on Cushing's syndrome.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Explain the mechanism of action of steroid hormone.
17. Give an account on biological actions of parathyroid hormone.
18. Discuss about the synthesis and biological effects of vasopressin.
19. Narrate the mechanism of action of insulin.
20. Explain the biosynthesis and biological effects of catecholamines

MBEBC 2

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2016.

Part III - Biochemistry – Major Based Elective

ENDOCRINOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2=20)

Answer All Questions.

1. What is Calmodulin?
2. Write any four functions of IP_3.
3. Give the structure of thyroid hormones.
4. Write about Paget's disease.
5. Give the functions of somatostatin.
6. Which cell secretes pancreatic polypeptide? Write its functions.
7. What are the roles of MSH?
8. What are hypophysiotrophic factors?
9. Comment on Addison's disease.
10. How glucocorticoids regulates carbohydrate metabolism?

PART B – (5 × 5=25)

Answer All Questions.

11. (a) Explain how steroid hormone exerts its action.(or)
    (b) Describe the classification of hormones.
12. (a) Write short note on PTH. (or)
    (b) Give the biological actions of thyroid hormones.
13. (a) Explain the disorders of GH. (or)
    (b) Give the functions of vasopressin.
14. (a) Explain the role of insulin like growth factors.
    (b) Describe the functions of glucagon.
15. (a) Give short note on:
        i) Cushing's syndrome.
        ii) Pheochromocytoma. (or)
    (b) Write the functions of Adrenal Androgen.

PART C – (3 × 10=30)

Answer any THREE questions.

16. Discuss the structure and functions of RTK.
17. Describe the disorders of thyroid hormone.
18. Write an essay on anterior pituitary hormones.
19. Give a detailed account on functions and mechanism of action of Insulin.
20. Write an essay on Gonadal hormones.

MBEBC 2

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major Based Elective

ENDOCRINOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What are hormones?
2. Comment on hormone responsive element.
3. What is Rickets?
4. Give the role of Calcitonin.
5. Write the causes of Acromegaly.
6. What is diabetes insipidus?
7. Give the functions of Somatostatin.
8. What are the factors affecting the secretion of Insulin?
9. Write the characteristics of Addison's disease.
10. Name the steroid hormones.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Explain the mechanism of action of steroid hormones. (or)
    (b) Write a short note on G-proteins.
12. (a) Write about anti-thyroid drugs. (or)
    (b) Write a note on:
        i) Grave's disease.
        ii) Myxoedema.
13. (a) Mention the functions of prolactin and gonadotropins. (or)
    (b) What are the hypophysiotrophic factors? Give their role.
14. (a) Write a note on:
        i) Pancreatic polypeptides
        ii) Insulin like growth factor. (or)
    (b) Explain the biosynthesis of Insulin.
15. (a) Write the functions of glucocorticoids. (or)
    (b) Name the female sex hormones. Explain their functions.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Write a detailed note on classification of hormones.
17. Explain the functions of parathyroid hormone.
18. Discuss the biological effects of oxytocin and vasopressin.
19. Describe the biological actions of insulin and glucagon.
20. Write a detailed note on ovarian cycle.

MBEBC 3

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2015.

Part III - Biochemistry – Major Based Elective

IMMUNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What are lymphocytes?
2. Name the types of immune responses.
3. What is an antibody? Give an example.
4. State the general structure of immunoglobulin.
5. What is acquired immunity?
6. What are interleukins?
7. Define graft rejection.
8. Give two examples for autoimmune disease reactions.
9. What is hybridoma?
10. What are precipitins?

PART B – (5x5=25)

Answer All Questions.

11. (a) Explain the mechanism of phagocytosis. (or)
    (b) Write a note on immune tolerance.
12. (a) Brief on agglutination reactions. (or)
    (b) Write a note on bacteriolysin.
13. (a) How is phagocytosis carried out? (or)
    (b) Explain the mechanism of antiviral immunity.
14. (a) Write a note on HLA genes. (or)
    (b) Explain the mechanism of T cell activation.
15. (a) Write a note on immune fluorescence. (or)
    (b) Explain the immune diffusion reaction.

PART C – (3x10=30)

Answer any THREE questions.

16. Discuss the types and biological functions of complement system.
17. What is an antigen? Explain the types and characteristics of antigen.
18. What are lymphokines? Explain their role in immune response.
19. Elaborate the different types of hypersensitive reactions.
20. Explain the principle and techniques of RIA and ELISA.

MBEBC 3

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

Part III - Biochemistry – Major Based Elective

IMMUNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10X2=20)

Answer All Questions.

1. What are T helper Cells?
2. What are plasma cells?
3. How are phagolysosomes formed?
4. List the composition of freund's incomplete adjuvant.
5. What are lymphokines?
6. What is innate immunity?
7. What do you mean by a graft?
8. What is on autoimmune disease?
9. What is hybridoma?
10. What do you mean by immunofluorescence?

PART B – (5x5=25)

Answer All Questions.

11.(a) Name some factors secreted by activated macrophages with their functions. (or)
(b) Write a note on immune tolerance.

12. (a) Write a note on epitopes. (or)
(b) Write the features of antigenecity.

13. (a) Write a note on antiviral immunity? (or)
(b) Write a note on MHC.

14. (a) Write a note on immunosuppressive drugs. (or)
(b) Explain the location and functions of HLA.

15.(a) Write a note on complement fixation tent. (or)
(b) Write a note of immunoelectrophoresis.

PART C – (3x10=30)

Answer any THREE questions.

16. Explain the structure and functions of various lymphoid organs.
17. Discuss the antigen-antibody interactions in detail.
18. Brief the secretion and functions of interleukins.
19. What is transplantation? Explain the graft rejection reactions.
20. Explain the principle, types and applications of ELISA.

MBEBC 3

(For candidates admitted from 2008-2009 onwards)

B.Sc. DEGREE EXAMINATION, APRIL 2017.

Part III – Biochemistry – Major Based Elective

IMMUNOLOGY

Time : Three hours Maximum : 75 marks

PART A– (10 × 2 = 20)

Answer All Questions.

1. What are the major CDs present in T-cells?
2. Mention the characteristics of dendritic cells.
3. What is an epitope?
4. Mention the bacteriolysin.
5. Name any two antitoxins available in the market.
6. Define Prognosis.
7. What do you meant by organ graft?
8. Write any two points on HLA – gene.
9. Expand RIA.
10. Name any two substances used in immunofluoscence technique.

PART B – (5 × 5 = 25)

Answer All Questions.

11. (a) Discuss on the types and functions of macrophage. (or)
    (b) How will you identify the cells involved in immune reaction?
12. (a) Explain the complement system. (or)
    (b) Give an account on agglutination reactions.
13. (a) Discuss the innate immunity. (or)
    (b) Explain the functions of lymphokines and interleukins.
14. (a) Give an account on pathogenesis of autoimmune disease. (or)
    (b) Write the chemistry and function of immune suppressive drugs.
15. (a) How would you raise an antisera? Explain. (or)
    (b) Explain the immune diffusion technique.

PART C – (3 × 10 = 30)

Answer any THREE questions.

16. Elaborate the primary and secondary lymphoid organs involved in immune system.
17. Write an essay on the classification, structure and functions of immunoglobulins.
18. Describe in detail on acquired immunity.
19. Explain in detail about the types and clinical response of hypersensitivity reaction.
20. Discuss the principle, technique and applications of ELISA.