(Answer any seven questions from each group. All question carry equal marks).

**Group A**

1. Define buffer systems. Write down the buffer systems present in plasma and within the RBC. How blood PH is maintained?
2. Define colloid. State the differences between colloid and crystalloids.
3. Define and Classify lipids. Mention different phospholipids with their biomedical importance.
4. Define and classify enzymes. Mention the factors that effect enzyme activity.
5. Define and classify carbohydrates. Describe the different isomers of Glucose.
6. What are the body fluid compartments? Mention the volume disorders in human body with example.
7. Mention different structures of protein. How protein structure is stabilized?
8. Write short notes on : i) Nucleotide ii) Peptide bond

**Group B**

9. How dietary starch digested and absorbed in GIT.
10. What is electron transport chain (ETC)? How ATP is produced in ETC?
11. What is Beta oxidation? Show energetics from beta oxidation of palmitic acid.
12. How ketone bodies are formed and utilized in the body? What is ketosis?
13. Draw and label lipoprotein structure. What are apoproteins? State the fate of VLDL.
14. Outline pathway of cholesterol synthesis. What are the fates of cholesterol?
15. What is transamination and deamination? Outline the steps of urea cycle.
16. Describe glycogen metabolism.
(Answer any seven questions from each group. Use separate answer script for each group.
All questions carry equal marks.)

GROUP - A

Q.1 Draw & label a DNA. Give its characteristics. 2.5+2.5
Q.2 Define replication. Give the features of replication. What is okazaki pieces? 1+2+2
Q.3 What is transcription? How termination of transcription occurs. Define PCR. 1+3+1
Q.4 Mention the hormones of adrenal gland. Give the function of cortisol and aldosterone. 1.5+3.5
Q.5 Give the steps of thyroid hormone formation. Define goiter myxedema, cretinism & graves disease. 3+2
Q.6 Name the endocrine secretion of pancreas. Give the function of insulin. What is C peptide? 1+2.5+1.5
Q.7 Give a short account on genetic engineering. 5
Q.8 Write short notes on – i) Cell cycle ii) Mutation. 2.5+2.5

GROUP - B

Q.9 Define and classify vitamins, Give the source, M/A, and deficiency disorders of Vit.C 2+3
Q.10 What is free radical? Give example. How they are produced & neutralized in our body. 1.5+3.5
Q.11 Give a brief account on calcium homeostasis. 5
Q.12 Name the hematopoietic vitamins. Mention their role on metabolism. What is folate-trap. 1+2+2
Q.13 What investigations would you suggest for diagnosis and monitoring of DM ? What is glycaemic index. 4+1
Q.14 How bilirubin is metabolized in our body. Name the liver function test. 3+2
Q.15 Define BMR. Name the factors that influence BMR. 1+4
Q.16 Write short notes on – i) SDA ii) Balanced diet. 2.5+2.5
1. Describe osmosis, diffusion and active transport. What are the differences between facilitated diffusion and active transport?

2. Define enzymes, coenzymes and co-factors. Classify enzymes with example.

3. Define isomerism. Describe the various forms of isomerism of glucose.

4. Write down the structural organization of protein. What are the properties of amino acids?

5. Define and classify lipids with example. Enumerate the essential fatty acids. Mention the importance of Eicosanoids.

6. What do you mean by body water balance? How ECF volume is regulated?

7. Mention the major types of acid base disorders. What are the biochemical changes occur in metabolic acidosis and how it is compensated?

8. Write short notes on (i) Nucleotides, (ii) Enzyme inhibitors.

9. What are the catabolic pathways of glucose metabolism? Write down the importances of hexose monophosphate shunt.

10. Define respiratory chain. Mention the components of the respiratory chain and how ATP is produced?

11. What are the dietary sources and functions of cholesterol? Write down the stages of cholesterol biosynthesis.

12. What do you mean by transamination and oxidative deamination? Describe the steps of urea biosynthesis.

13. What are the fates of acetyl CoA and pyruvate? Describe Ketogenesis.

14. Name the proteolytic enzymes of GIT and pancreas. How end products of starch and lactose digestion are absorbed?

15. Mention the role of bile salts in fat digestion and absorption. How chylomicron is metabolized?

16. Write short notes on (i) G6PD (ii) Porphyria
Group-A

Q.1 Name the protein and enzyme require for replication. Mention their role in replication. 2+3
Q.2 What are the post transcriptional modifications-mention their necessity. 5
Q.3 Mention the differences between DNA & RNA. State the significance of reverse transcription. 3.5+1.5
Q.4 What do you mean by biological cloning? Enumerate the steps of biological cloning. 1+4
Q.5 Write short notes on:
   I. Gene therapy: 2.5×2=5
   II. DNA repair.
Q.6 Write the steps of insulin biosynthesis. Mention its deficiency effects on lipid metabolism. 2+3
Q.7 Name the hormone essential for life. Mention the effects of cortisol on inflammation. 1+4
Q.8 Name the hormone related to calcium homeostasis. Write the biochemical aspects of tetany. 1.5+3.5

Group-B

Q.1 Classify volume disorder and mention their biochemical features. Write the consequence of water intoxication. 3+2
Q.2 Name the active form of vitamin B complex -mention their role in metabolism. 5
Q.3 State the source, RDA, functions of vitamin B₁₂, & biotin. Mention their deficiency features. 4+1
Q.4 Name the foods contain dietary fiber. Give its positive and negative effects. 1+4
Q.5 Mention the laboratory hazards. What are the universal safety measures? 2+3
Q.6 Mention the components of lipid profile with their normal value. How you differentiate three types of jaundice biochemically? 2+3
Q.7 Write short notes on:
   I. Tumor marker. 2.5×2=5
   II. BMI.
Q.8 What do you mean by free radicals? Write in short about natural defense against free radicals. 1+4
Full Marks: 70	 Time: 2 hrs 40 minutes.

(Answer any seven questions from each group. All questions carry equal marks).
Use separate answer for each group.

Group – A

Q.1 Define and classify Solution. Calculate the volume of a 25.0% (W/V) solution containing 10.0 g NaCl.

Q.2 Define and classify Isomers. Mention the importance of Isotopes.

Q.3 How proteins are organized into different structure? What do you mean by denaturation of protein?

Q.4 Classify the Enzymes according to IUB system of classification. What are the methods of regulation of enzyme activity?

Q.5 Classify lipid. Briefly outline the structure and functions of Phospholipids.

Q.6 Classify Monosaccharides. What are Mucopolysaccharides and what is their biological importance?

Q.7 Define biological membrane. Mention the transport processes through the biological membrane with example?

Q.8 Mention the structural features of nucleotides? What are their biological functions?

Group – B

Q.9 How the buffer systems play a role in the maintenance of acid base balance? Write down the causes of metabolic acidosis and how it is compensated.

Q.10 What are the factors which regulate the water and electrolytes balance? What are the causes and clinical features of Hypokalemia?

Q.11 Mention the volume disorders in human body with causes and biochemical features.

Q.12 What are the different transporter systems involved in the absorption of glucose and how they act? What is lactose intolerance?

Q.13 Define gluconeogenesis. Trace the main pathway of gluconeogenesis from lactate to glucose.

Q.14 Trace the main pathway of ketone bodies formation. What is ketosis and what are the causes of ketosis?

Q.15 Name the main types of hyperlipoproteinemias and what are the causes? What are the fates of cholesterol and how is it utilized?

Q.16 Define free energy. How ATP is produced in the electron transport chain by oxidative phosphorylation?
Group-A

Q.1 Mention the functions of nucleotides. What are the differences of purines and pyrimidines? 2+3
Q.2 Define Genetic Code. What are the characteristics of Genetic Codes? What is degeneracy? 1+3+1
Q.3 Define Mutation. Mention the types and consequences of different types of mutation. 1+4
Q.4 How a target DNA fragment can be amplified? Mention the basic steps and uses of PCR. 2+3
Q.5 Define and classify hormones according to chemical structure. What is first and second messenger in hormone action? 3+2
Q.6 State the raw materials for synthesis of steroid and thyroid hormones. What are the features of hypofunctional state of thyroid hormones? 2+3
Q.7 Name the hormones of Pancreas. What are the consequences of deficiency of insulin? 1+4
Q.8 Name the hormones of pituitary. Differentiate diabetes mellitus and insipidus. 3+2

Group-B

Q.1 Define and classify nutrients. Mention the functions and deficiency features of iron and iodine. 2+3
Q.2 What are the essential amino acids and essential fatty acids? What are the differences between Kwashiorkor and Marasmus. 2+3
Q.3 What is a balanced diet? Prescribe a balanced diet for a medical student of 50 Kg body weight. 1+4
Q.4 Name the active forms of hematopoietic vitamins. Mention their source and deficiency manifestations. 2+3
Q.5 Name the biochemical tests to diagnose Diabetes mellitus. Interpret OGT. 2+3
Q.6 Define and classify Jaundice. Mention the major biochemical tests in different types of jaundice. 2+3
Q.7 Define Photometry. State the basic principles of Photometry. What is OD (Optical Density)? 1+3+1
Q.8 Write short notes on: (a) Quality Control (b) Specimens in biochemical tests. 2.5+2.5
Group – A (Question number 1 to 8)

1. Enumerate the normal blood buffer systems. Why bicarbonate buffer system is important and phosphate buffer system is stronger? (3+2)

2. Define and classify enzymes with example. Mention the clinical importance of CK and ALT. (3+2)

3. Classify lipids with example. Describe how triacylglycerol is digested in the GIT? (2+3)

4. Enumerate the protein splitting enzymes present in GIT. How glucose and amino acids are absorbed? (3+2)

5. Define and classify carbohydrates. Mention the biochemical importance of pentoses and hexoses. (2+3)

6. Enumerate the body fluid compartments. Mention the role of kidney to maintain ECF volume. (2+3)

7. Mention the basic mechanism of urine formation. How isotonic glomerular filtrate is converted to hypertonic urine? (2+3)

8. Enumerate the common acid base disorders. How normal plasma pH is maintained? (2+3)

Group – B (Question number 9 to 16)

9. Enumerate the catabolic pathways of Carbohydrate Metabolism. Mention the biochemical importance of anaerobic glycolysis and HMP shunt. (2+3)

10. Mention the sources and fates of blood cholesterol. How cholesterol biosynthesis can be prevented? (3+2)

11. Enumerate the fates of pyruvate. Ten molecules of ATP are formed per turn of the Citric Acid Cycle-explain. (2+3)

12. Enumerate the essential fatty acid. What are the derivatives of eicosanoids? Mention their biochemical importance. (1+2+2)

13. Define and classify porphyria. How haeme is synthesized? (2+3)

14. Draw the structure with name of fatty acids with the information (ω6, 20:4, Δ5,8,11,14) and (ω3, 18:3, Δ6,12,15). Describe beta oxidation of fatty acids. (2+3)

15. Enumerate the ketone bodies. How they are synthesized? Mention their biochemical importance. (1+2+2)

16. Describe how toxic ammonia is converted to non-toxic Urea. (5)
Group – A

Q.1 Draw the diagram of Watson crick model of DNA. State the organization of DNA in to chromosome. 2+3
Q.2 Define transcription. State the post transcriptional modifications. What is reverse transcription? 1+3+1
Q.3 Draw and label cell cycle. In which phase of cell cycle replication occurs. What are the requirements of replication? 1.5+1+1.5
Q.4 Name the various types of RNA with their functions. What are the post transcriptional modifications? 1.5+3.5
Q.5 State the steps of biosynthesis of insulin. Mention it’s effect on protein and lipid metabolism. 2+3
Q.6 Name the hormones essential for life. Mention the effect of cortisol on inflammation. 1.5+3.5
Q.7 Name the hormones related to calcium homeostasis? Mention their source. How calcium homeostasis is maintained? 1+1+3
Q.8 Write short notes on: a) Salvage pathway. b) Acromegaly. 2.5+2.5

Group – B

Q.1 Define glycemic index. Mention the clinical importance of dietary fibre. 1+4
Q.2 Define BMR. Mention the factors affecting BMR. Write about the ways of basal energy expenditure. 1+2+2
Q.3 What are the free radicals? Write in short about natural defense against free radical. 1+4
Q.4 Write short notes on: a) PUFA. b) BMI. 2.5+2.5
Q.5 What do you mean by quality control of biochemical lab? Write about its components in short. 1+4
Q.6 Name the common renal function tests with their interpretation. What do you mean by plasma clearance value of a substance? 4+1
Q.7 Write the functions of liver. Mention various liver function tests. 2+3
Q.8 Write short notes on: a) Lipid profile. b) Tumor marker. 2.5+2.5
GROUP-A

Q.1. Classify solution. How will you prepare 200 ml of isotonic saline?

Q.2. Define colloid solution. Give the properties of colloids. How colloids can be separated from colloids.


Q.5. Define lipids. State their functions & biomedical importance.

Q.6. Define & classify buffers. What are the factors affecting the buffering capacity?

Q.7. Define coenzyme. Name the vitamin B-complex derived coenzymes. What is Km value?

Q.8. State the source, chemistry & biomedical importance of cholesterol.

GROUP-B

Q.9. Define bioenergetics. Mention the location & components of ETC. How ATP is produced in the ETC

Q.10. Enumerate the digestive enzymes. State the process of digestion & absorption of carbohydrates.


Q.12. State the importance of TCA cycle. Why is it called common metabolic pathway? How is it related with the urea cycle?


Q.14. Describe urea cycle including location, raw materials & importance of the cycle.

Q.15. Enumerate the major steps of cholesterol biosynthesis. Calculate the energy production from 18-carbon fatty acid metabolism.


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Full Marks-70

(Answer any seven questions from each group. Use separate answer script for each group.

**Group-A**

Q.1 What is central Dogma of life? State the function of nucleotides. 1+4

Q.2 Define replication. What are the enzymes of replication. Mention their function. 1+4

Q.3 What is genetic code? What are the features of genetic code? Mention the types of mutation. 1+2+2

Q.4 Define transcription and translation. What are the post transcriptional & post translational modifications? 1+4

Q.5 Name the steroid hormones. Mention the function of aldosterone & cortisol in short. 1+4

Q.6 What are the thyroid function tests? Interpretate the results of OGTT. 3+2

Q.7 Define quality control. What do you mean by precision, accuracy, sensitivity and specificity? 1+4

Q.8 Write short notes on: i) Electrophoresis ii) DNA library 2.5+2.5

**Group - B**

Q.1 What are the energy releasing nutrients? Name the nutrients essential for man. Mention their RDA. 1.5+1.5+2

Q.2 What do you mean by malnutrition? Write the difference between Kwashiorkor and marasmus. 1+4

Q.3 What do you mean by trace element? Mention the source & function of zinc, iron & iodine? 1+4

Q.4 What are the criteria of ideal diet? Prepare a balance diet for a pregnant lady of 60 Kg. 2+3

Q.5 Define and classify vitamins. Enumerate the Coenzymes derived from vitamin B-complex. 2.5+2.5

Q.6 Mention the chemical name of fat soluble vitamins. What are the sources & functions of vitamin A & vitamin E. 2+3

Q.7 State the function of vitamin D. What biochemical effects occur in Rickets and Osteomalacia? 3+2

Q.8 Write short notes on: i) Addison’s disease ii) Acromegaly 2.5+2.5
Shahjalal University of Science and Technology
1st Professional MBBS Examination, July 2011
Subject: Biochemistry, Paper- I (SAQ)
Full Marks: 70                Time: 2 hrs 40 minutes.
(Answer any 7 (Seven) question from each group.
All questions carry marks).

Group – A

Q. 1 Define and classify solution. How will you prepare 100 ml N/10 H₂SO₄ solution from concentrated H₂SO₄ (purity 95%, Sp. Gr 1.25)?

Q. 2 Mention the volume disorders in human body with one example from each. Give the features of hypokalaemia.

Q. 3 How enzyme activity is expressed? What are the factors that influence enzyme activity? Mention the difference between Katal & IU in expressing enzyme activity.

Q. 4 Give the functional classification of protein. What do you mean by domain? What is denaturation of protein?

Q. 5 What is pH? Write down the homeostasis of [H⁺] in our body.

Q. 6 Define and classify lipid. What is the function of phospholipids?

Q. 7 What are the functions of prostaglandins? How they synthesized?

Q. 8 Give the structure of (i) Sucrose, (ii) Tyrosine (iii) Linolenic acid (iv) Cholesterol (v) Purine.

Group – B

Q. 9 Define Bioenergetics. Mention the location and component of Electron transport chain (ETC). How ATP is produced in the ETC?

Q. 10 How ammonia is disposed of from the body? Mention the importance of transaminases?

Q. 11 Define lipid profile. Give their normal range.in SI unit. Mention the importance of HDL-Cholesterol and LDL-Cholesterol.

Q. 12 Give the steps of Beta-oxidation of fatty acids. What are the sources and fates of acetyl Co-A in the body.

Q. 13 Give a salient feature of cholesterol metabolism.

Q. 14 Name the ketone bodies. How ketone bodies give energy during starvation.

Q. 15 Mention major types of Acid base disorders. How they compensated?

Q. 16 Write short notes on:
   (i) Anion gap
   (ii) Apoptosis
   (iii) Interleukin
   (iv) Immune system
   (v) Insulin
Shahjalal University of Science & Technology
1st Professional MBBS Examination, July '2011
Subject: Biochemistry, Paper- II (SAQ)

Full Marks - 70
Time - 2.40 minutes

(Answer any seven questions from each group. Use separate answer script for each group. All questions carry equal marks.)

GROUP-A

Q.1 Draw and label tRNA. Mention the differences among three major types of RNA? 2+3
Q.2 Define replication. What are its requirements? How replication bubble is formed. 1+2+2
Q.3 Describe the initiation step of translation. What are the post translational modifications? 3+2
Q.4 Write short notes on: i) Biological cloning ii) DNA library 2.5+2.5
Q.5 Classify B-complex vitamins. Mention their active form and function. 1.5+3.5
Q.6 What are the source of vitamin D? How its active form is formed? Mention its RDA. 1+3+1
Q.7 Calculate the calorie requirement of a lactating mother of 60 Kg. Prescribe her require macro and micro nutrients. 2.5+2.5
Q.8 Write short notes on: i) Vector. ii) Anti oxidant vitamins. 2.5+2.5

GROUP-B

Q.9 What are the modern techniques in biochemistry? Mention the principle and function of any two. 1.5+3.5
Q.10 List the functions of liver. Name some tests for cellular damage of liver. 3.5+1.5
Q.11 What do you mean by IGR? Write the indication, preparation of patient and procedure of OGTT. 1+4
Q.12 Classify hormones on the basis of their mechanism of action. Describe the mechanism action of glucagon. 2.5+2.5
Q.13 What are the metabolic functions of cortisol? Discuss its role on inflammation. 3.5+1.5
Q.14 Mention the metabolic functions of thyroid hormone? How TSH influences increase synthesis of thyroid hormone. 3+2
Q.15 Mention the function of insulin on carbohydrate metabolism. Discuss its deficiency effect on lipid metabolism. 3+2
Q.16 Write short notes on: i) Parathyroid hormone ii) Quality control. 2.5+2.5
Shahjalal University of Science & Technology  
First Professional MBBS Examination, January-2011  
Subject: Biochemistry, Paper-1(SAQ)

Full Marks: 70 Time: 2 hours and 40 minutes

Use separate answer scripts for each group. All questions carry equal marks

Answer any seven questions from each group

**Group-A**

1. Define and classify solution. Differentiate between colloids and crystalloids. 2+3
2. State the law of mass action. Mention the biomedical importance of Henderson-Hasselbalch equation. 2+3
3. Define and classify carbohydrates. Differentiate between starch and glycogen. 3+2
4. Name the nitrogenous bases? Mention the importance of nucleotides. What are the differences between DNA and RNA? 1+2+2
5. Define enzyme. Classify enzymes according to IUB with one example of each class. 1+4
6. Define Gibb’s-Donnan equilibrium. Explain it with one example in human body. 1+4
7. Name the reference carbohydrate and reference carbon. What are the isomers of monosaccharides? 2+3
8. Write short notes on: a) Invert sugar b) Mutarotation 2.5+2.5

**Group-B**

9. Define bioenergetics. Mention the location and components of ETC. How ATP is produced in ETC? 1+2+2
10. Define gluconeogenesis. What are the substrates for gluconeogenesis? Mention the importance of gluconeogenesis. 1+2+2
11. Why TCA cycle is called amphibolic pathway? How it is related with urea cycle? How many ATP are produced from one acetyl CoA in TCA cycle? 2+2+1
12. Classify ketone bodies. How ketone bodies are produced and utilized? 1+2+2
13. How ammonia is produced and disposed of human body? Mention the importance of transamination. Write down the steps of urea cycle. 1+1+3
14. Name the amylolytic and proteolytic enzymes of GIT. How end products of fat digestion are absorbed from intestine? 1+1+3
15. Define glycolysis. Mention the irreversible steps of glycolysis. How many ATP are produced in aerobic and anaerobic glycolysis? 1+3+1
16. Write down the structure and metabolic fates of chylomicron. 2+3
Shahjalal University Of Science & Technology
1st Professional MBBS Examination, January 2011
Subject : Biochemistry, paper-11.(SAQ)

Full Marks - 70
Time: 2.40 Minutes

(Answer any seven questions from each group. Use separate answer script for each group.
All questions carry equal marks.)

GROUP – A

Q.1. Mention the salient feature of structure of DNA? What are the difference between DNA and RNA? 3+2.

Q.2. Define replication. Name the Components required for replication. State the function of DNA polymerase 1 and 111. 1+2+2

Q.3. Define codon & anti codon. What are the characteristic of genetic code. Name the initiation & termination codon. 1+3+1

Q.4. What is recombinant DNA technology? State the steps and importance of PCR. 1+2+2

Q.5. Give an account of renal function tests. State the enzymatic tests related to myocardial disease. 3+2

Q.6. Mention the liver function tests. Differentiate the types of Jaundice. 3+2

Q.7. Write in short about OGTT with interpretation of the result. 2+3

Q.8. Write short notes on . (a) DNA Library. (b) Cloning. 2.5+2.5

GROUP – B

Q.9. Define & classify vitamins. Mention the co-enzymes of B complex. What are the deficiency manifestation of thiamin & niacin. 1+2+2

Q.10. Name the antioxidant vitamins. Write down the source, function & deficiency manifestation of vitamin C. 1+4

Q.11. What is balanced diet. What are the advantages and disadvantages of dietary fibre? 1+4

Q.12. What is BMR? Mention the factors affecting BMR. Write the ways of Basal energy expenditure. 1+2+2

Q.13. Classify hormones according to their chemical nature. Write down the mechanism of action of protein hormone. 2.5+2.5

Q.14. Name the hormone of pancreas. Mention the function of insulin. How blood glucose level is maintained? 1+2+2

Q.15. What are the common nutritional problems in Bangladesh? State the differences between kwashiorkor & marasmus. 2+3

Q.16. What is micronutrient. Mention the absorption and metabolism of iron. 1+2+2
Q.1 Define and classify polysaccharides with example. Name three dietary disaccharides with source. What are the importance of carbohydrate?
Q.2 State the functional classification of protein. What is denaturation?
Q.3 Define and classify lipid. Mention the biomedical importance of fatty acid.
Q.4 Explain the Henderson Hasselbach equation. Give its importance.
Q.5 What is PH? How PH is maintained in our body? What is PH scale?
Q.6 Define enzyme. Give the IUB classification with examples.
Q.7 Name the membrane transport system. Define osmosis, diffusion, active transport.
Q.8 Define standard solution. Give the difference between crystalloid and colloid.

Group-B

Q.1 Define metabolism. Name some anabolic and pathway with example. What is amino acid pool?
Q.2 Define gluconeogenesis. Name the presucrsors of gluconeogenesis. Give its significance.
Q.3 Name the ketone bodies. How they are synthesized and utilized?
Q.4 Write down the steps of urea cycle. What are the fate of urea?
Q.5 Classify PH disorder. What are the difference between respiratory and metabolic acidosis?
Q.6 Name the lipoproteins. What are the function of lipoproteins?
Q.8 Write down the water intake and output chart. How water is regulated in our body?
Group – A

Q.1 Define codon & anti codon. What are the characteristics of genetic code. Name the termination codons.
Q.2 Define translation. What are the requirements of translation? What do you mean by post translation modifications.
Q.3 Draw and label the structure of DNA according to Watson & Crick model.
Q.4 Define mutation. Mention the types & consequences of mutation.
Q.5 What is recombinant DNA Technology? State the steps & importance of PCR.
Q.6 Mention the common hazards & associated safety measures in clinical laboratory.
Q.7 Mention the liver function tests. Differentiate the types of Jaundice.
Q.8 Give an account of renal function tests. Sate the enzymatic tests related to myocardial disease with their significance.

Group – B

Q.1 Define & classify hormone. Write down the mechanism of action of protein hormone.
Q.2 Name the hormones of pancreas. Mention the function of insulin. How blood glucose level is maintained?
Q.3 State thyroid hormones with their function. What are the differences between dwarfism & cretinsm?
Q.4 What is BMR? Mention the factors affecting BMR. Write the ways of Basal energy expenditure?
Q.5 Mention the active form of major B complex vitamins. Sate function of Vit B12 & folic acid.
Q.6 State the properties of water & fat-soluble vitamins. Sate the function & deficiency feature of vit A.
Q.7 What are the common nutritional problems in Bangladesh? State the differences between kwashiorkor & marasmas.
Q.8 What do you mean by trace elements? State the function of iron, iodine, zinc & dietary fiber.
1. What do you mean by standard solution? Calculate how much NaCl required to prepare 500 ml normal solution and 1 litre normal saline.


3. Mention the important biomolecules present in human body. Classify polysaccharides. Give the names & importance of mucopolysaccharides.

4. Enumerate the buffer systems present inside the red blood cells. Plasma Phosphate buffer system is stronger than plasma bicarbonate Buffer system- explain. Marks = 3+2

5. Classify Lipids. How Triacylglycerol is digested in the GIT.

6. Enumerate the essential fatty acids. Mention the biomedical importance of eicosanoids.

7. What are the protein digestive enzymes present in the GIT? What do you mean by amino acid pool?

8. Write short notes on (i) Enzyme Inhibitors(ii) Isotopes

GROUP- B

9. Enumerate the body fluid compartments. How body water balance is maintained?

10. What is anion gap? Mention the biochemical changes in metabolic acidosis and respiratory acidosis.


12. Mention the fates of acetyl co-A. Describe ketogenesis.

13. Mention the biomedical importance of Hexose mophosphate shunt. Write notes on G6PD.

14. State fates of ammonia in human body

15. How chylomicrone is metabolized? Mention the sources & fate of cholesterol.

16. Write short notes on (i) Beta oxidation of fatty acids (ii) Respiratory Chain
Shahjalal University of Science & Technology  
First Professional MBBS Examination, July '2010  
Subject:- Biochemistry, Paper- II (SAQ)  
Full Marks - 70  Time - 2.40 minutes

GROUP- A

1. Draw the structure of tRNA. Mention the function of each arm of tRNA.
2. What are the regulatory sequence of transcription? Mention their location and function? Write in short about termination step of transcription.
3. What are the requirements of translation? Describe in short its initiation step.
5. Define quality control (QC) of clinical biochemical lab. What are their components? What do you mean by precision and accuracy?
6. Classify jaundice. How can you differentiate different types of jaundice biochemically?
7. Mention the common lab hazards. How you can minimize this in clinical lab?
8. Write short notes on: I) Renal function tests. II) Thyroid function test.

GROUP- B

9. Classify hormones according to their mechanism of action. How G protein linked receptor is activated?
10. Name the diabetogenic and antidiabetogenic hormones. Mention the consequence of insulin deficiency in carbohydrate and fat metabolism.
11. Mention the hormonal control of calcium homeostasis. Why tetany occurs in alkalosis?
13. Classify vitamins. Mention the function of vitamin Bi2 and folic acid.
14. Calculate the basal calorie requirements of 50 Kg lactating mother. Prescribe her require amount of energy releasing nutrients.
15. Enumerate the trace elements necessary for health. Mention the biomedical functions of iodine, zinc and selenium.
16. Write short notes on; I) Food pyramid.  II) SDA