

[LB 0212]

AUGUST 2012

Sub. Code: 1301

**B.Sc. DIALYSIS TECHNOLOGY  
FIRST YEAR  
PAPER I – ANATOMY, PHYSIOLOGY,  
BIOCHEMISTRY AND PATHOLOGY – I  
Q.P. Code : 801301**

**Time : Three hours**

**Maximum : 100 marks**

**(180 Mins) Answer All questions in the same order.**

**I. Elaborate on:**

**Pages Time Marks  
(Max.)(Max.)(Max.)**

- |   |   |    |    |
|---|---|----|----|
| 1. Describe in detail the physiological processes in different parts of the nephron and the factors affecting them.   | 7 | 20 | 10 |
| 2. Describe in detail the pathogenesis and the differences between insulin dependent and non insulin dependent diabetes. How is diabetes diagnosed in the lab and explain the pathophysiology and complications of diabetic ketoacidosis. | 7 | 20 | 10 |
| 3. Describe the parts of a neuron. Classify nerve fibres and describe in detail the neural control of the motor system.   | 7 | 20 | 10 |

**II. Write Notes on:**

- |  |   |    |   |
|--|---|----|---|
| 1. Mention the bones of the pelvic girdle and its differences from pectoral girdle.                    | 4 | 10 | 5 |
| 2. Elucidate the constituents of the blood compartment.  | 4 | 10 | 5 |
| 3. How is potassium distributed and excreted from the body? Also enumerate the causes of hyperkalemia. | 4 | 10 | 5 |
| 4. Explain amyloidosis. Mention the classification and features of primary and secondary amyloidosis.  | 4 | 10 | 5 |
| 5. Write on the anatomy, relations and contents of pericardium.  | 4 | 10 | 5 |
| 6. Show diagrammatically the intrinsic and extrinsic coagulation pathways.                             | 4 | 10 | 5 |
| 7. Define basal metabolic rate. What are the factors influencing it and its significance?              | 4 | 10 | 5 |
| 8. Describe the clinical syndrome, pathogenesis and complications of falciparum malaria.               | 4 | 10 | 5 |

**III. Short Answers on:**

- |   |   |   |   |
|---|---|---|---|
| 1. Name the bronchopulmonary segments of the lungs.                           | 2 | 4 | 3 |
| 2. Draw the normal ECG complex. Define the different waves and segments seen. | 2 | 4 | 3 |

[LC 0212]

FEBRUARY 2013

Sub. Code: 1301

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

**PAPER I – ANATOMY, PHYSIOLOGY,  
BIOCHEMISTRY AND PATHOLOGY – I**

*Q.P. Code : 801301*

**Time : Three hours**

**Maximum : 100 marks**

**Answer All questions.**

**I. Elaborate on:**

**(3X10=30)**

1. Explain diagrammatically the different parts of the nephron, their function and hormones produced by the kidney.
2. Describe the composition of blood and functions of each component.
3. Describe in detail the thoracic cage, muscles of respiration and the respiratory cycles.

**II. Write Notes on:**

**(8x5=40)**

1. Enumerate the bones of the pelvic girdle.
2. Describe the cardiac cycle and factors affecting the cardiac output.
3. How is sodium distributed and excreted from the body? Also enumerate the causes of hyponatremia.
4. Describe the general features of innate immunity
5. Write on the anatomy and blood supply of the bladder.
6. Explain the mechanism of thrombus formation.
7. Define basal metabolic rate. What are the factors influencing it and their significance?
8. Describe the general principals of microbial pathogenesis

**III. Short Answers on:**

**(10x3=30)**

1. Describe the physiological anatomy of the respiratory tract.
2. Draw the normal cardiac cycle and describe it.
3. Mention the causes of hyperkalemia.
4. Give examples of disorders of multifactorial inheritance?
5. Define edema. Enumerate the differences between transudative and exudative edema.
6. Write about the relations and contents of the pericardium?
7. Mention the actions and feedback control of vitamin D.
8. Write short notes on diabetes.
9. Define shock and classify it.
10. Describe the coverings of the kidney and structures in the hila?

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[LD 0212]

AUGUST 2013

Sub.Code :1301

**B.SC. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

**PAPER I – ANATOMY, PHYSIOLOGY, BIOCHEMISTRY,**

**PATHOLOGY-I**

**Q.P. Code: 801301**

**Time: Three hours**

**Maximum : 100 Marks**

**Answer All questions**

**I Elaborate on:**

**(3x10 =30)**

1. Write the dietary sources, daily requirement, functions and deficiency features of vitamin C.
2. Explain the cardiac cycle in detail with suitable diagram.
3. Mention the parts of excretory system and explain the anatomy of kidney.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Enzyme inhibition
2. Surface anatomy of heart
3. Functions of hemoglobin
4. List the steps involved in erythropoiesis
5. Pleura
6. Mutations
7. Functions of lipoproteins
8. Types and mechanism of cell injury

**III. Write short answers on:**

**(10 x 3 = 30)**

1. Mention the hormones of adrenal medulla
2. Name the valves of heart
3. Mention the muscles of arm
4. Write the three most common bacterial infections
5. Respiratory movements
6. Amphipathic lipids
7. Role of bile in digestion
8. Name three hormones regulating calcium levels
9. Define pH, molarity, molality
10. Draw the structure of DNA

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[LE 0212]

**FEBRUARY 2014**  
**B.SC. DIALYSIS TECHNOLOGY**  
**FIRST YEAR**  
**PAPER I – ANATOMY, PHYSIOLOGY, BIOCHEMISTRY,**  
**PATHOLOGY-I**

Sub.Code :1301

**Q.P. Code: 801301**

**Time: Three hours**

**Maximum: 100 Marks**

**Answer all questions**

**I Elaborate on:**

**(3x10 =30)**

1. Define inflammation. Mention its types and explain the various reactions in acute inflammation
2. Describe the various steps involved in formation of urine.
3. Write the dietary sources, daily requirement, functions and deficiency features of vitamin D.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Synthesis & composition of CSF
2. Blood grouping
3. Denaturation of proteins
4. Functions of hemoglobin
5. Apoptosis
6. Bronchial tree
7. Biochemical effects of glucocorticoids
8. Sacrum

**III. Write short answers on:**

**(10 x 3 = 30)**

1. Name the sulphur containing aminoacids
2. Define Specific dynamic action
3. Intercellular accumulations
4. Mention the auscultatory areas
5. Intercostal space
6. Name the types of RNA
7. Write the functions of WBC
8. Mention the types of muscles
9. Write any three carcinogens
10. Define & write the normal values of i) tidal volume ii) total lung capacity

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[LF 0212]

AUGUST 2014

Sub.Code :1301

B.Sc. DIALYSIS TECHNOLOGY

FIRST YEAR

PAPER I – ANATOMY, PHYSIOLOGY, BIOCHEMISTRY &  
PATHOLOGY - I

*Q.P. Code: 801301*

**Time: Three hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 =30)**

1. Describe the coverings and Gross features of the kidney.
2. Describe the various events that take place in the cardiac cycle.
3. Mention the biochemical pathways which produce and utilize glucose. Explain the mechanisms by which different hormones help to maintain the blood glucose level.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Deltoid muscle.
2. Neuron.
3. List the functions of the liver.
4. What is erythropoiesis? Where does it occur in adults? List the factors required for normal erythropoiesis.
5. What are lipids? How are they classified?
6. Write briefly on plasma proteins.
7. Apoptosis.
8. Pathological calcification.

**III. Write short answers on:**

**(10 x 3 = 30)**

1. Name the three parts of the hip bone.
2. Name the valves of the heart.
3. Name the two pathways of coagulation. List two common anticoagulants used in the laboratory.
4. List two functions of thyroid hormones.
5. Mention the purines and pyrimidines found in DNA and RNA.
6. Define basal metabolic rate. Name 3 factors which influence basal metabolic rate.
7. Write two differences between the morphological pattern of acute inflammation and chronic inflammation
8. Define Neoplasia. Give two examples each for benign and malignant neoplasia.
9. List four causes of cell injury.
10. List two types of mutations giving example.

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[LG 0215]

FEBRUARY 2015

Sub.Code :1301

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

**PAPER I – ANATOMY, PHYSIOLOGY, BIOCHEMISTRY &  
PATHOLOGY - I**

*Q.P. Code: 801301*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 =30)**

1. Write in detail about the different stages of erythropoiesis. Add a note on anaemia.
2. Write about the structure of nephron.
3. Write about the classification of carbohydrates with suitable examples.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Movements of joints.
2. Erythrocyte Sedimentation Rate (ESR).
3. Acquired Immunity.
4. Spermatogenesis.
5. Features of Transitional epithelium.
6. Carbon dioxide (CO<sub>2</sub>) transport in blood.
7. Differences between male and female pelvis.
8. Balanced diet.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Write about the structure and functions of semilunar valves.
2. What is Basal Metabolic Rate (BMR)?
3. What are the hormones secreted by adrenal cortex? Mention their functions.
4. What is a Buffer? Give two examples.
5. What is mutation? Give one example.
6. What are the types of muscles? Write two features of any one type of muscle.
7. Write about the functions of platelets.
8. List the differences between marasmus and kwashiorkor.
9. Write about the Recommended Dietary Allowance (RDA) and natural sources of water soluble vitamins.
10. What is micturition reflex?

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3. Mention the causes of hypercalcemia.	2	4	3
4. What are the mechanisms of cell injury?	2	4	3
5. Define edema. Enumerate the differences between transudative and exudative edema.	2	4	3
6. What are the coverings of the kidneys?	2	4	3
7. Mention the actions and feedback control of parathyroid hormone.	2	4	3
8. Write short notes on Wilson's disease.	2	4	3
9. Classify shock.	2	4	3
10. How are structures in the hila of the kidneys arranged?	2	4	3

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[LI 0216]

FEBRUARY 2016

Sub.Code :1301

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

**PAPER I – ANATOMY, PHYSIOLOGY, BIOCHEMISTRY &  
PATHOLOGY - I**

*Q.P. Code: 801301*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 =30)**

1. Write the dietary sources, daily requirement, functions and deficiency features of vitamin A.
2. Describe the cardiac cycle in detail and illustrate the same.
3. Describe the gross anatomy of Kidneys in detail. Give an account of blood supply, lymphatic drainage, relations

**II. Write notes on:**

**(8 x 5 = 40)**

1. Write a note on denaturation of proteins.
2. What are carbohydrates? How are they classified?
3. Describe pleura and explain its functions.
4. Describe a note on homeostasis.
5. Describe the morphological patterns of acute inflammation.
6. Describe the physiological anatomy of Gastro Intestinal Tract (GIT).
7. Write a brief note on menstruation.
8. Describe the pathological and physiological variation of Red Blood Cells (RBC).

**III. Short answers on:**

**(10 x 3 = 30)**

1. Illustrate the auscultatory areas of heart.
2. Draw a nephron and mark their parts.
3. Illustrate an Electro cardiogram (ECG) wave and mark its significance.
4. Describe the biochemical effects of glucocorticoids.
5. What is called endocytosis and exocytosis?
6. Mention three functions of Cerebrospinal Fluid (CSF).
7. Write the classification of amino acids.
8. What is called marasmus and kwashiorkor?
9. Define molarity and molality.
10. What are called glycoproteins?

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[LJ 0816]

AUGUST 2016

Sub.Code :1301

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

**PAPER I – ANATOMY, PHYSIOLOGY, BIOCHEMISTRY &  
PATHOLOGY - I**

*Q.P. Code: 801301*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 =30)**

1. Describe the process and different stages of urine formation and explain the role of glomeruli of nephron in the formation of urine.
2. Define proteins. How do you classify proteins? Explain in detail about each of them.
3. Define inflammation. What are the types of inflammation? Explain in detail about the events and outcome of acute inflammation.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Decompression sickness.
2. Muscles of thorax and their functions.
3. Composition of blood and explain the functions of blood.
4. Give a detailed note on WBCs.
5. Artificial respiration.
6. Water soluble vitamins.
7. Renal function tests.
8. Explain in detail about the structure, function and metabolism of Haemoglobin.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Hip joint.
2. Cardiac murmurs.
3. Endocytosis.
4. Electrocardiogram.
5. Functions of Cerebrospinal fluid.
6. Structure of DNA.
7. Types of necrosis
8. Normal Karyotype.
9. Protein Energy Malnutrition.
10. Packed Cell Volume.

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[LK 0217]

FEBRUARY 2017

Sub.Code :1301

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

**PAPER I – ANATOMY, PHYSIOLOGY, BIOCHEMISTRY &  
PATHOLOGY - I**

*Q.P. Code: 801301*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 =30)**

1. Draw a nephron and explain the parts and functions of a nephron in detail.
2. Classify water soluble vitamins and explain in detail about each of them.
3. Define neoplasia. Compare and contrast the features of benign and malignant tumors in detail.

**II. Write notes on:**

**(8 x 5 = 40)**

1. What are the methods available for haemoglobin estimation and explain in detail about Sahli's method of haemoglobin estimation?
2. What do you mean by ESR? How do you estimate the ESR by Westergren's method?
3. Circulatory shock.
4. What are leucocytes? Classify them and explain in detail about the morphology and function of granulocyte.
5. How is a cerebrospinal fluid analysis done? Compare and contrast the CSF findings in different types of meningitis.
6. Describe the role of kidney in maintaining acid base balance.
7. Brief account on menstrual cycle.
8. Renal dialysis.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Name six agents that cause cell injury.
2. What are the outcomes of acute inflammation?
3. Consequences of defective inflammation.
4. Name four tumor causing viruses.
5. Name four conditions that cause neutropenia.
6. Name two conditions that is associated with decreased platelet count.
7. What are different types of RNA?
8. Auscultatory areas.
9. Erythropoiesis.
10. Rh factor.

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[LL 0817]

AUGUST 2017

Sub.Code :1301

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

**PAPER I – ANATOMY, PHYSIOLOGY, BIOCHEMISTRY &  
PATHOLOGY - I**

*Q.P. Code: 801301*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 =30)**

1. Define Electrocardiogram and describe in detail the waves of a normal electrocardiogram.
2. Describe the chemical regulation of respiration.
3. What is countercurrent mechanism? Describe the anatomical and physiological basis of countercurrent mechanism in kidney.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Spermatogenesis.
2. Micturition.
3. Definitions and normal values of lung volumes and lung capacities.
4. Classification, function and chemical structure of monosaccharides.
5. Coagulation system.
6. Procedure of recording ECG.
7. How do you determine PCV and give the significance of PCV?
8. Molecular basis of cancer.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Outcome of acute inflammation.
2. Apoptosis.
3. Heart sounds.
4. Respiratory movements.
5. Function of thyroid hormones.
6. Structure of RNA.
7. Blood groups.
8. Anticoagulants.
9. Respiratory unit.
10. Vitamin C.

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**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

**PAPER I – ANATOMY, PHYSIOLOGY, BIOCHEMISTRY &  
PATHOLOGY - I**

*Q.P. Code: 801301*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3 x 10 =30)**

1. Composition of Blood, functions of the blood and plasma proteins.
2. Describe in detail the thoracic cage, muscles of respiration and the respiratory cycles.
3. Define Inflammation. Give a detailed account of General features of inflammation. Add a note on acute inflammation.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Describe the general principals of microbial pathogenesis.
2. Cell Structure and functions of the varies organelles.
3. Coronary arteries.
4. What are lipids? How are they classified?
5. Detailed description about WBC.
6. Foetal circulation.
7. Electro cardiogram (ECG).
8. Mechanism of enzyme action.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Role of bile in the digestion.
2. Hypothalamic hormones.
3. Henderson – Hasselbalch equation.
4. GI hormones.
5. Causes of cell injury.
6. Name 3 Parasitic infections.
7. Connective tissue.
8. Mention the causes of hyperkalemia.
9. Examples of cell injury and necrosis.
10. Disorders of the immune system.

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