

[LH 0815]

AUGUST 2015

Sub. Code: 1306

**B.Sc. DIALYSIS TECHNOLOGY**  
(New Syllabus 2014-2015)

**FIRST YEAR**

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

*Q.P. Code: 801306*

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Draw a neat diagram and explain about the urinary system. Add a note on the functional unit of urinary system.
2. Explain the composition and function of blood.
3. Describe the Krebs's cycle in detail.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Define intercostal space and structures related to it.
2. Thoracic vertebrae.
3. Biceps muscle.
4. Erythrocyte Sedimentation Rate.
5. Micturition.
6. Lung volumes.
7. Basal metabolic rate.
8. Marasmus.

**III. Short Answers on:**

**(10 x 3 = 30)**

1. Name the joints formed by the bones of upper limb.
2. Name the cartilages forming larynx.
3. Endocytosis.
4. Name the fat soluble vitamins.
5. Define platelets.
6. What is normal respiratory rate?
7. What is hypertension?
8. Define pH.
9. What are trace elements?
10. Name the hormones of pancreas.

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[LI 0216]

FEBRUARY 2016

Sub. Code: 1306

**B.Sc. DIALYSIS TECHNOLOGY**  
(New Syllabus 2014-2015)

**FIRST YEAR**

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

*Q.P. Code: 801306*

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Draw a neat diagram of clavicle. Add a note on side identification, features, joints it forms and muscles attached to it.
2. Describe the cardiac cycle in detail.
3. What are lipids? Describe the classification and function of lipids.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Pleura.
2. Larynx.
3. Chambers of heart.
4. Haemoglobin.
5. Neuromuscular junction.
6. Hormones secreted by pituitary gland.
7. Heart sounds.
8. Thiamine.

**III. Short Answers on:**

**(10 x 3 = 30)**

1. Anatomical position.
2. Pericardium.
3. Coronary artery.
4. Exocytosis.
5. Mention the normal RBC count in females.
6. What is vital capacity?
7. What is molality?
8. What is Rh factor?
9. Name the gastrointestinal hormones.
10. What is bile?

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**B.Sc. DIALYSIS TECHNOLOGY  
FIRST YEAR  
PAPER I – ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY**

*Q.P. Code: 801306*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Describe in detail the steps involved in blood clot formation. Add a note on Hemophilia.
2. Describe the kidney under the following headings: a) Location, b) External features, c) Internal features, d) Blood supply, e) Applied anatomy.
3. Explain the role of hormones in the regulation of blood glucose levels.

**II. Write notes on:**

**(8 x 5 = 40)**

1. What is the composition of gastric secretion? Explain its functions.
2. Draw a neat, well labelled diagram of the animal cell. Mention two functions of the nucleus.
3. Describe the origin, insertion, nerve supply and action of the Deltoid muscle.
4. Describe the blood supply of heart.
5. Write in detail the external features of the Right lung.
6. Describe the role of kidneys in regulating acid-base balance in the body.
7. What is the function of LDL and HDL in cholesterol transport in blood? Write any three functions of cholesterol.
8. Describe the various biochemical tests done to assess the functioning of the kidney.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Mention any three functions of the Liver.
2. Write a note on the functions of surfactant.
3. What is Cushing's syndrome? Mention 2 features seen in this condition.
4. Mention the salient difference between a bronchus and a bronchiole.
5. Name two structures lined by transitional epithelium.
6. Name two salient features of clavicle.
7. Enumerate the intercostal muscles and what is their nerve supply.
8. Write briefly on the functions and deficiency symptoms of Iodine.
9. How is the active form of vitamin D synthesized in the body?
10. What are essential amino acids? Name the essential amino acids.

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**B.Sc. DIALYSIS TECHNOLOGY**  
**FIRST YEAR**  
**PAPER I – ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY**

*Q.P. Code: 801306*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Explain the various mechanisms involved in Blood pressure regulation. Add a note on hypertension.
2. Describe the lungs under the following headings: (a) coverings (b) External features, (c) Differences between right and left lungs (d) Parts of bronchial tree (e) Applied anatomy.
3. Describe the factors that regulate enzyme activity. Add a note on isoenzymes.

**II. Write notes on:** **(8 x 5 = 40)**

1. Explain the innervation of the urinary bladder. Add a note on micturition reflex.
2. Name the gland that secretes Growth hormone and explain the functions of growth hormone. Add a note on Acromegaly.
3. Describe the origin, insertion, nerve supply and action of the Biceps brachii muscle.
4. Mention the layers of the Pleura, its recesses and its nerve supply.
5. Mention the extent of Ureter and sites of its constrictions.
6. Describe briefly the digestion and absorption of dietary lipids.
7. Write briefly on protein-energy malnutrition in children.
8. Explain the regulation of calcium homeostasis.

**III. Short answers on:** **(10 x 3 = 30)**

1. Give two examples of active transport across the cell membrane.
2. Classify plasma proteins and mention 1 function of each.
3. Mention three factors that cause right shift of the oxygen-hemoglobin dissociation curve.
4. Enumerate the differences between an artery and a vein.
5. Name the structures present in the hilum of kidney.
6. Mention two features of typical thoracic vertebra.
7. Name the branches of arch of aorta.
8. Write briefly on the functions and deficiency manifestations of vitamin C.
9. Describe the different types of diabetes mellitus.
10. Define basal metabolic rate. Name any two factors which influence basal metabolic rate.

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

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

*Q.P. Code: 801306*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Describe endocrine regulation of blood glucose level add a note on diabetes mellitus.
2. Brachial plexus- formation, parts, branches and add a note on carpal tunnel syndrome.
3. Discuss about structural organisation of proteins and classify them based on their function.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Mechanism of secretion of HCl in stomach.
2. Explain GFR – factors influencing them. Give normal value.
3. Dietary fibres.
4. Inborn errors in metabolism.
5. Exocrine action of Pancrease.
6. Trigone of the bladder.
7. Deltoid - origin, insertion, nerve supply, action with diagram.
8. Essential fatty acids.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Hamburger's phenomenon.
2. Hypothermia.
3. Dyspnoea.
4. Functions of plasma proteins.
5. Erb's palsy.
6. Superior vena cava – tributaries.
7. Papillary muscle.
8. Refractory period.
9. Albuminuria.
10. Phospholipids.

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

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

*Q.P. Code: 801306*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Describe kidneys under following headings: Location and Size, Borders and surfaces, Coverings, Relations of Right kidney and its coronal section. Add a note on Applied aspect.
2. Explain Hypothalamo Pituitary Gonadal axis in female. Add a note on ovulation.
3. Write in detail about complete oxidation of glucose in detail.

**II. Write notes on:**

**(8 x 5 = 40)**

1. ADH – add a note on diabetes insipidus.
2. Balanced diet.
3. Pectoralis major.
4. Cutaneous innervation of palm.
5. Haemostasis explain in brief.
6. Constrictions of ureter.
7. Coronary artery - special features and applied aspects.
8. Renal handling of sodium.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Heart sounds explain.
2. Define pH, molarity and molality.
3. Name the lipoproteins.
4. Sesamoid bone.
5. Name the factors affecting enzyme activity.
6. Liver function test.
7. Myasthenia gravis.
8. Draw the picture of a typical nephron and mention parts.
9. Plasma pheresis.
10. Name the appendages of skin.

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

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

*Q.P. Code: 801306*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Explain O<sub>2</sub> transport in blood. Add note on ODC curve and Bohr effect.
2. Draw typical vertebrae and explain it in relation with spinal cord. Add a note on dermatome.
3. Write the pathway and calculate energetics for  $\beta$  oxidation.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Explain the mechanism of renin - angiotensin aldosterone system.
2. Rotator cuff of shoulder joint.
3. Draw innervation of urinary bladder and Describe mechanism of micturition. Add a note on cystometrogram.
4. Deglutition reflex.
5. Costo diaphragmatic recess.
6. Nutritional disorders.
7. Maple syrup urine disease.
8. Cubital fossa- boundaries and content.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Name the factors responsible to maintain blood in fluid state.
2. Crista terminalis.
3. Peptic ulcer.
4. Muscles of respiration.
5. Cell injury – pathogenesis.
6. Attachment to corocoid process of scapula.
7. Glycosuria.
8. Benedict's test.
9. Heat coagulation test.
10. Cyanosis.

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**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

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

*Q.P. Code: 801306*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Discuss about the Blood pressure under the following heading:  
(a) Systolic (b) Diastolic (c) Factors regulating (d) Hypertension
2. Draw a neat diagram of Nephron. Add a note on relations of the Right Kidney.
3. Define – Balanced Diet. Enumerate the functions of Protein and Calcium.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Diabetes Mellitus.
2. Functions of Vitamin - C
3. Functions of Blood.
4. Pectoralis Major.
5. Dietary fibre.
6. Protein energy malnutrition.
7. Classification of Joints.
8. Classification of Tissues.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Name the three phases of Menstrual cycle.
2. Name the hormones secreted by pituitary gland.
3. Hypothermia.
4. Pneumatic Bones.
5. Cyanosis.
6. Ribs.
7. Openings of the Diaphragm.
8. Composition of urine.
9. Examples for polysaccharides.
10. Define – Glycolysis.

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[LP 0819]

AUGUST 2019

Sub. Code: 1306

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

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

*Q.P. Code: 801306*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Describe the Mechanism of Urine Formation.
2. What are Carbohydrates? Describe the classification and functions with examples.
3. Describe the Kidney under the following headings:  
(a) Location (b) Structure (c) Blood supply (d) Covering

**II. Write notes on:**

**(8 x 5 = 40)**

1. Draw the diagram of Scapula and explain.
2. Urinary Bladder.
3. Draw and Label the structure of a Cell.
4. Composition of Blood.
5. Functions of the skin.
6. Hypertension.
7. Draw the diagram of Pancreas and explain about its secretions.
8. Water soluble vitamins.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Define – Blood pressure.
2. Define – Glomerular filtration Rate.
3. Transitional Epithelium.
4. Deltoid Muscle.
5. Differences between Artery and Vein.
6. Renal calculi.
7. Beriberi.
8. Draw and Label the parts of Nephron.
9. Pleura.
10. Salivary Glands.

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**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR**

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

*Q.P. Code: 801306*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Draw the Diagram of Urinary System and Add a note on Urinary Bladder.
2. Describe the Blood under the Following Headings:  
(a) Composition (b) Functions (c) Blood Groups
3. Vitamins.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Thyroid Gland.
2. Liver.
3. Amino acids.
4. Nephron.
5. Auscultatory Areas.
6. Clotting Factors.
7. Valves of the Heart.
8. Muscular Tissue.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Parts of stomach.
2. Name the Muscles of Respiration.
3. Hip joint.
4. What is the Normal Range for Glomerular Filtration Rate?
5. Erythropoiesis.
6. Night Blindness.
7. Define – Balanced Diet.
8. Name any two foods rich in Protein.
9. What is the Normal Range for Platelets?
10. Draw the diagram of Clavicle.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0321]**

**MARCH 2021**

**Sub. Code: 1306**

**(AUGUST 2020 EXAM SESSION)**

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR (From 2014-2015 onwards)**

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

***Q.P. Code : 801306***

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Explain the process of Urine Formation.
2. Describe the events of erythropoiesis and add a note on factors affecting it.
3. Name the types of circulation. Describe in detail about blood supply of heart along with its applied anatomy.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Calcium homeostasis.
2. Cardiac cycle.
3. Lung Volumes and Capacities.
4. Digestion of Carbohydrates.
5. Anterior and Posterior relations of both the Kidneys.
6. Deltoid muscle – origin, insertion nerve supply and applied anatomy.
7. Trachea.
8. Functions of Pancreas.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Function of Anti Diuretic Hormone.
2. Define Blood pressure.
3. Name the types of Muscle.
4. Examples for Ball and Socket Joint.
5. Branches of Coronary artery.
6. Name three Connective tissue cells.
7. Name the three layers of Adrenal Cortex.
8. Upper end of Humerus.
9. Functions of Neutrophil.
10. Frank starling Law.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

[AHS 0422]

**APRIL 2022**

**Sub. Code: 1306**

**(FEBRUARY 2021 & AUGUST 2021 EXAM SESSIONS)**

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR (Regulations 2014-2015)**

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

***Q.P NO. 801306***

**Time: Three Hours**

**Answer All questions**

**Maximum: 100 Marks**

**I. Elaborate on: (3 x 10 = 30)**

1. Describe the cross section of kidney under following headings:  
i) location ii) parts iii) borders and surfaces. Add a note on Renal failure.
2. What is Erythropoiesis? Describe the stages and the factors influencing it.
3. Describe the Watson and crick model of DNA with a neat diagram.

**II. Write notes on: (8 x 5 = 40)**

1. Wald's visual cycle.
2. Structure and functions of WBCs.
3. Denaturation.
4. Cubital fossa.
5. Lactose intolerance.
6. Erb's palsy.
7. Functions of saliva.
8. ketoacidosis.

**III. Short answers on: (10 x 3 = 30)**

1. Name the types of plasma proteins.
2. Functions of lipoproteins.
3. Claw hand.
4. Name the components of conducting system of heart.
5. Mitochondria.
6. Name the contents of axilla.
7. Lumbricals.
8. Name the Derivatives of sugar.
9. Functions of platelets.
10. Types of bones.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

[AHS 1122]

NOVEMBER 2022

Sub. Code: 1306

**B.Sc. DIALYSIS TECHNOLOGY  
FIRST YEAR (Regulation 2014-2015)  
PAPER I – ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY  
Q.P NO. 801306**

**Time: Three Hours**

**Answer All questions**

**Maximum: 100 Marks**

**I. Elaborate on: (3 x 10 = 30)**

1. Explain the blood supply of heart with a neat diagram. Add a note on applied anatomy.
2. Describe the structure of Hemoglobin. Add a note on functions of Hemoglobin.
3. Explain the Chemistry, sources, RDA, biochemical functions and deficiency manifestations of Vitamin A.

**II. Write notes on: (8 x 5 = 40)**

1. Role of bile in digestion.
2. Difference between right and left lung.
3. Structure of Urinary bladder.
4. Classification and functions of Lipids.
5. Heart sounds.
6. Essential amino acids.
7. Define Basal Metabolic Rate. Add a note on factors affecting Basal Metabolic Rate.
8. Mouth to mouth respiration.

**III. Short answers on: (10 x 3 = 30)**

1. Ketonuria.
2. Types of hypoxia.
3. Functions of prostaglandin.
4. Types of RNA.
5. Composition of Blood.
6. Tidal volume.
7. Name the muscles supplied by median nerve.
8. Scurvy.
9. Name the muscles of anterior compartment of arm.
10. Give any three Non excretory functions of kidney.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

[AHS 0423]

APRIL 2023

Sub. Code: 1306

**B.Sc. DIALYSIS TECHNOLOGY**  
**FIRST YEAR (Regulations 2014-2015 & 2018-2019 onwards)**  
**PAPER I – ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY**  
*Q.P. Code: 801306*

**Time: Three Hours**

**Answer All questions**

**Maximum: 100 Marks**

**I. Elaborate on:** (3 x 10 = 30)

1. Explain the formation, parts and branches of Brachial plexus and add a note on Carpal Tunnel syndrome.
2. Name the steps involved in urine formation. Explain the mechanism of GFR in detail.
3. Explain the homeostasis of blood glucose. Add a note on Diabetes Mellitus.

**II. Write notes on:** (8 x 5 = 40)

1. Structure of Nephron.
2. Describe the origin, insertion, nerve supply and action of Deltoid muscle.
3. Anticoagulants.
4. Factors affecting enzyme activity.
5. Disorders of protein deficiency.
6. Renal function test.
7. Valves of the Heart.
8. Circulatory shock.

**III. Short answers on:** (10 x 3 = 30)

1. Name the joints formed by the bones of Lower limb.
2. What is Balanced diet?
3. Name the Pancreatic enzymes.
4. Supination and Pronation.
5. Name the antigens present in ABO system.
6. Features of Tetany.
7. Branches of arch of Aorta.
8. Deficiency of vitamin D.
9. Cardiac cycle.
10. Structures passing through the Hilum of lung.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1123]

NOVEMBER 2023

Sub. Code: 1306

**B.Sc. DIALYSIS TECHNOLOGY**

**FIRST YEAR (Regulations 2014-2015 & 2018-2019 onwards)**

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

*Q.P. Code: 801306*

**Time: Three hours**

**Maximum : 100 Marks**

**Answer ALL Questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Define Glomerular Filtration Rate. Write its Normal Values. What are the factors of influencing GFR.
2. Describe in detail about the Lungs under the following headings:
  - a) Coverings
  - b) External features
  - c) Differences between Right and Left Lung
  - d) Parts of Bronchial tree
  - e) Applied Anatomy.
3. Describe in detail about Fat Soluble Vitamins.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Neuromuscular junction.
2. Classification of Epithelium.
3. Artificial Respiration.
4. Popliteal fossa.
5. Chambers of the Heart.
6. Gastrointestinal hormones.
7. Cushing's syndrome.
8. Structure of Nephron.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Renal calculi.
2. Hormones of the posterior pituitary.
3. Urinary bladder and functions.
4. Heart sounds.
5. Any three functions of Plasma protein.
6. Dietary fibers.
7. Classification of Muscles.
8. Glycosuria.
9. Buffers.
10. Parts of Long bone.

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