

**BACHELOR IN PROSTHETICS AND ORTHOTICS
FIRST YEAR
PAPER II – PHYSIOLOGY**

Q.P. Code: 802452

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. With the help of a diagram, describe the structure of a neuron. List the parts of the nervous system. List the functions of the nervous system.
2. What is meant by coagulation of blood? Briefly describe the pathways of clotting.
3. Describe the mechanism of carbon di oxide and oxygen transport in the blood.

II. Write notes on:

(8 x 5 = 40)

1. Describe the mechanics of breathing.
2. List the composition and functions of blood.
3. Describe the features of an upper motor neuron (UMN) lesion.
4. What is the normal blood glucose level? Describe how insulin and glucagon maintain blood glucose levels?
5. What is meant by cardiac output? Describe the factors affecting cardiac output.
6. Describe the various events in the cardiac cycle.
7. Describe the pathway for pain. What is meant by referred pain?
8. Describe the micturition reflex.

III. Short answers on:

(10 x 3 = 30)

1. Describe the function of the: (a) endoplasmic reticulum (b) mitochondria
2. What is meant by Packed Cell Volume (PCV)? What is the normal value of the PCV?
3. What is meant by the term reflex? What are the parts of a reflex arc?
4. What is meant by muscle tone?
5. What is the pacemaker of the heart? Where is it located?
6. List the functions of skin.
7. List the properties of cardiac muscle.
8. What is muscle fatigue?
9. List the functions of the Cerebellum.
10. What is a motor unit?

BACHELOR IN PROSTHETICS AND ORTHOTICS
FIRST YEAR
PAPER II – PHYSIOLOGY

Q.P. Code: 802452

Time: Three Hours**Maximum : 100 Marks**

Answer All questions

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

1. Describe the neuro muscular junction. Describe how the nerve impulse crosses the neuro muscular junction?
2. Describe the conducting system of the heart. What is the normal heart rate? Describe factors that regulate the heart rate.
3. Describe the structure and function of the Red Blood Cell. What is the normal RBC count? What is meant by anemia? List three causes of anemia.

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

1. Describe the various lung volumes and capacities.
2. Describe the action potential of a neuron.
3. List the different neuroglia found in the body and their functions.
4. Describe the properties of cardiac muscle. What are the special features of cardiac muscle?
5. Describe the different phases of the cardiac cycle.
6. List the hormones produced by the pancreas and their functions.
7. List the different lobes of the cerebral cortex. What are the main functions of these lobes?
8. Describe the micturition reflex.

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

1. What is meant by the term Osmosis?
2. List the different body fluid compartments.
3. How does the skin help in skin in temperature regulation?
4. What is the function of the following organelles in a cell:
(a) Mitochondria (b) Lysosome
5. What is muscle fatigue? Why does it occur?
6. Draw and label the normal ECG.
7. What is meant by the terms : (a) Apnoea (b) Hyperpnoea
8. List the muscles of inspiration and expiration.
9. List the functions of plasma proteins.
10. List the functions of the hypothalamus.

BACHELOR IN PROSTHETICS AND ORTHOTICS

FIRST YEAR

PAPER II – PHYSIOLOGY

Q.P. Code: 802452

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. List the different descending tracts. Describe the origin, course, termination and functions of the pyramidal tracts.
2. Describe the various events that occur during the cardiac cycle.
3. With the help of a diagram, describe the different lung volumes and capacities.

II. Write notes on:

(8 x 5 = 40)

1. Describe the mechanics of breathing.
2. What is an action potential? Describe with a diagram.
3. Describe the structure of skeletal muscle.
4. Describe the different mechanisms of transport across the cell.
5. List the different White blood cells (WBCs) with their functions.
6. Describe the micturition reflex.
7. Describe the action of insulin. Add a note on Diabetes mellitus.
8. Describe the functions of skin.

III. Short answers on:

(10 x 3 = 30)

1. List the functions of the kidney.
2. List the functions of the cerebellum.
3. What is meant by the following terms?
(a) Apnoea (b) Tachypnoea
4. What is hypertension?
5. What is the normal RBC count?
6. What are the functions of platelets?
7. What is meant by muscle fatigue?
8. What is meant by anemia? Give two causes.
9. What is referred pain?
10. What is lymph? What are the functions of lymph?

BACHELOR IN PROSTHETICS AND ORTHOTICS**FIRST YEAR****PAPER II – PHYSIOLOGY****Q.P. Code: 802452****Time: Three Hours****Maximum : 100 Marks****Answer All questions****I. Elaborate on:****(3 x 10 = 30)**

1. Describe in brief the mechanism by which coagulation (clotting of blood) occurs?
2. What is a reflex? Describe the reflex arc. What are monosynaptic and polysynaptic reflexes? What are superficial reflexes?
3. Describe the secretion, action and regulation of insulin. Add a note on diabetes mellitus.

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

1. Describe the different types of neuroglia and their functions.
2. Describe the transmission of a nerve impulse across a synapse.
3. Describe the composition and functions of lymph.
4. Describe the structure and function of the kidney.
5. Describe the normal electrocardiogram (ECG) with the help of a diagram.
6. Describe the mechanics of breathing. List the muscles of inspiration and expiration.
7. Describe the functions of the lung.
8. Describe the functions of skin.

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

1. What is meant by
(a) Tactile localization (b) Stereognosis
2. Define cardiac output.
3. Define the term vital capacity.
4. What is meant by the term “pacemaker of the heart”?
5. Describe the features of cardiac muscle.
6. List the different body fluid compartments.
7. What is meant by the terms active transport and passive transport?
8. What is a cystometrogram?
9. Describe the function of the following
(a) Mitochondria (b) Endoplasmic reticulum
10. Explain the cause of the first and second heart sound.

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

[AHS 0321]

MARCH 2021

Sub. Code: 2452

(AUGUST 2020 EXAM SESSION)

BACHELOR IN PROSTHETICS AND ORTHOTICS

FIRST YEAR (Regulation 2017-2018)

PAPER II – PHYSIOLOGY

Q.P. Code : 802452

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. List the various ascending sensory tracts and describe the pathway for pain.
2. With the help of a diagram, describe the structure of the cell.
3. What are the different white blood cells present in the blood and what are their functions? What is immunity?

II. Write notes on:

(8 x 5 = 40)

1. Describe the micturition reflex.
2. What is hypoxia? What are the different types of hypoxia? How can this be treated?
3. Describe the conducting system of the heart.
4. What is the normal value of blood pressure? What are the factors that determine blood pressure?
5. Describe the functions and actions of insulin.
6. Describe how oxygen and carbon-dioxide are transported in the blood?
7. Describe the structure and function of skin.
8. Describe an action potential with the help of a diagram.

III. Short answers on:

(10 x 3 = 30)

1. List the functions of the hypothalamus.
2. Define muscle tone.
3. What is meant by the following terms?
(a) Dyspnea (b) Orthopnea
4. What is the effect of the sympathetic and parasympathetic nervous system on the heart?
5. What is the normal RBC count?
6. What are the functions of platelets?
7. What is meant by packed cell volume (PCV)?
8. What is meant by the term Resting Membrane Potential (RMP)?
9. List the different body fluid compartments.
10. List the functions of the kidney.

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

[AHS 0422]

APRIL 2022

Sub. Code: 2452

(FEBRUARY 2021 & AUGUST 2021 EXAM SESSIONS)

BACHELOR IN PROSTHETICS AND ORTHOTICS

FIRST YEAR (Regulations 2017-2018)

PAPER II – PHYSIOLOGY

Q.P NO. 802452

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on : (3X10=30)

1. What is a Synapse? Write a note on classification of Synapse and Synaptic transmission.
2. Write in detail about the regulation of secretion of Insulin and Glucagon. Add a note on Diabetes Mellitus.
3. Explain with the help of a neat diagram about the physiological anatomy and nervous connections of Bladder. Briefly explain the Micturition reflex.

II. Write Notes on : (8X5=40)

1. Write about the composition of different body fluid compartments.
2. List the functions of plasma proteins .
3. Write a note on Resting Membrane Potential.
4. With a diagram explain the Conducting system of heart.
5. Explain Lung Volumes.
6. Functions of Cerebellum.
7. Write a note on Hemisection of Spinal cord.
8. Describe the various events in Cardiac cycle.

III. Short Answers on : (10X3=30)

1. What is meant by Erythrocyte Sedimentation Rate (ESR)? What is its normal value?
2. What is Hypoxia?
3. Define Arterial Blood Pressure and write its normal value.
4. List the properties of cardiac muscle.
5. Describe an Action Potential.
6. What are the functions of Blood?
7. Define the term - Hypotonia and Hypertonia.
8. What are the different types of Memory?
9. Write about Intraplural Pressure.
10. What is meant by Stereognosis and name the pathway for it.

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

[AHS 0423]

APRIL 2023

Sub. Code: 2452

**BACHELOR IN PROSTHETICS & ORTHOTICS
FIRST YEAR (Regulation 2017-2018 onwards)
PAPER II – PHYSIOLOGY
Q.P. Code: 802452**

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on : (3X10=30)

1. What is Normal RBC count? With the help of a neat diagram, explain the structure of RBC. Add a note on different types Anaemia.
2. Describe in detail about the mechanism of Breathing.
3. Classify Ascending tracts. Explain in detail the origin, course, termination and functions of Posterior Column Tracts.

II. Write Notes on : (8X5=40)

1. List the functions of Hypothalamus.
2. Differentiate superficial and deep reflex with suitable examples.
3. With the help of a neat diagram, explain the different waves in ECG.
4. Hypoxia.
5. List the functions of Kidney.
6. Classify WBC and write the functions of each WBC.
7. Write about properties of nerve fibers.
8. Explain the events occurring in neuromuscular junction.

III. Short Answers on : (10X3=30)

1. What are the functions of cell?
2. Write about the different Blood Indices.
3. What is meant by muscle fatigue?
4. What is a motor unit?
5. What is meant by Dyspnea and Orthopnea?
6. Define cardiac output and write its normal value.
7. What is meant by Functional Residual Capacity?
8. What is meant by Referral pain?
9. What are the functions of Thalamus?
10. List the functions of Skin.

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

[AHS 1123]

NOVEMBER 2023

Sub. Code: 2452

**BACHELOR IN PROSTHETICS & ORTHOTICS
FIRST YEAR (Regulation 2017-2018 onwards)
PAPER II – PHYSIOLOGY
Q.P. Code: 802452**

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on : (3X10=30)

1. Describe in detail the structure and classification of synapse. Explain the mechanism of synaptic transmission.
2. Discuss about the anatomy and innervation of Urinary bladder. Explain Cystometrogram with a neat diagram.
3. What is the composition of Plasma? Discuss in detail about the functions of Plasma proteins.

II. Write Notes on : (8X5=40)

1. Describe the structure of RBC. What are its functions?
2. Describe the passive transport mechanisms across the cell membrane with suitable examples.
3. Describe monosynaptic and polysynaptic reflexes.
4. Describe the changes occurring in the left ventricular volume during the different phases of cardiac cycle.
5. Functions of Respiratory System.
6. What is referred pain? Describe with suitable examples.
7. Conducting system of Heart.
8. Describe respiratory membrane with a neat diagram.

III. Short Answers on : (10X3=30)

1. Mention the types of lymphocytes. What are its functions?
2. Resting membrane potential.
3. What is the normal blood glucose level? Name the hormones that maintain blood glucose levels.
4. Structure of skeletal muscle.
5. Define: (i) Motor unit (ii) Muscle Fatigue.
6. List down the functions of lateral spinothalamic tract.
7. What is stereognosis?
8. What are the different types of memory? Give examples.
9. What is the normal RBC count? What is polycythemia?
10. Enumerate the lung volumes and capacities. What is tidal volume?

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

[AHS 0424]

APRIL 2024

Sub. Code: 2452

BACHELOR IN PROSTHETICS & ORTHOTICS

FIRST YEAR (Regulation 2017-2018 onwards)

PAPER II – PHYSIOLOGY

Q.P. Code: 802452

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on :

(3 X 10 = 30)

1. Classify Receptors. Explain in detail the functions and properties of Receptors.
2. Define Cardiac cycle. Write in detail about the phases of Cardiac cycle.
3. What is Blood coagulation? Explain the functions, normal count and disorders of Platelets.

II. Write Notes on :

(8 X 5 = 40)

1. Write about the transport mechanism across cell membrane.
2. List the composition of Lymph and its functions.
3. Draw the structure of neuroglia and write its functions.
4. Define cardiac output and factors regulating it.
5. Functions of Respiratory system.
6. Differentiate between UMN and LMN Lesion.
7. Functions of Basal ganglia.
8. Cystometrogram.

III. Short Answers on :

(10 X 3 = 30)

1. Name three disorders of Respiration.
2. What is meant by Hypertension?
3. What is meant by Tactile Localisation and Tactile Discrimination?
4. Composition of body fluids.
5. What are the types of Diabetes Mellitus?
6. Renal circulation.
7. What is meant by Refractory period?
8. Name the different lymphocytes and list their functions.
9. What are the different types of Aphasia?
10. Respiratory membrane.

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

[AHS 1124]

NOVEMBER 2024

Sub. Code: 2452

BACHELOR IN PROSTHETICS & ORTHOTICS

FIRST YEAR (Regulation 2017-2018 onwards)

PAPER II – PHYSIOLOGY

Q.P. Code: 802452

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on :

(3 X 10 = 30)

1. Describe the structure of the skeletal muscle with the help of neat diagram. Add a note on Muscle fatigue.
2. Define Blood pressure. Explain in detail factors affecting Blood pressure. Add a note on Hypertension.
3. List the Nuclei of Hypothalamus. Explain in detail the functions of Hypothalamus.

II. Write Notes on :

(8 X 5 = 40)

1. Explain Simple and Facilitated Diffusion with suitable diagrams.
2. Extracellular fluid compartment.
3. Define Anemia. Write briefly on its classification.
4. Draw the structure of a neuron and explain its different parts.
5. Glucose metabolism and its regulation.
6. Functions of Frontal lobe.
7. Complete transection of Spinal cord.
8. Explain the properties of Receptors.

III. Short Answers on :

(10 X 3 = 30)

1. What are Microfilaments? Give their functions.
2. Classification of muscle.
3. List the different parts of the ECG wave.
4. Define Hyperventilation. Mention any two conditions in which hyperventilation occurs.
5. Give the functions of RBC.
6. How is the Peripheral Nervous System classified?
7. Give any three examples of Referred pain.
8. What are the functions of Juxtaglomerular apparatus?
9. What is Heat loss centre and Heat gain centre?
10. Mention any four actions of Insulin.

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

[AHS 0425]

APRIL 2025

Sub. Code: 2452

BACHELOR IN PROSTHETICS & ORTHOTICS

FIRST YEAR (Regulation 2017-2018 onwards)

PAPER II – PHYSIOLOGY

Q.P. Code: 802452

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on :

(3 x 10 = 30)

1. Explain in detail about active and passive transport across cell membrane with suitable diagrams.
2. Describe the functional anatomy of Kidney. Write briefly about Renal circulation.
3. Classify Descending tracts. Explain in detail the origin, course, termination and functions of Corticospinal tract.

II. Write Notes on :

(8 x 5 = 40)

1. Apoptosis.
2. Fibrinolytic system.
3. Structure of Skeletal muscle.
4. Protein Energy Malnutrition.
5. Explain the conduction of impulse in the Heart.
6. Draw a neat labelled diagram of the Respiratory membrane and explain.
7. Cystometrogram.
8. Explain the Biosynthesis of Thyroid hormone.

III. Short Answers on :

(10 x 3 = 30)

1. What are microtubules? Give their functions.
2. Give the functions of mitochondria.
3. List the main chambers of the heart and the great vessels.
4. Give the significance of intrapleural pressure.
5. What is synaptic delay?
6. Mention any four functions of Cerebellum.
7. What is Reflex arc?
8. Give three differentiating features between Cortical and Juxtamedullary nephrons.
9. List the layers of Epidermis and Dermis.
10. Mention any four actions of Glucagon.

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

[AHS 1125]

NOVEMBER 2025

Sub. Code: 2452

BACHELOR IN PROSTHETICS & ORTHOTICS

FIRST YEAR (Regulation 2017-2018 onwards)

PAPER II – PHYSIOLOGY

Q.P. Code: 802452

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on :

(3 x 10 = 30)

1. Draw a neat labeled diagram and explain the structure of the cell membrane. Add a note on the functions of the cell membrane.
2. Draw a neat diagram of the Neuromuscular junction. Explain the sequence of events at the Neuromuscular junction.
3. Describe the various events of the Cardiac cycle in detail.

II. Write Notes on :

(8 x 5 = 40)

1. Write briefly on the sodium-potassium pump.
2. Write briefly on the types of Plasma proteins.
3. What are immunoglobulins? Write briefly about the different types of immunoglobulin.
4. Write briefly on functional anatomy of lymphatic system.
5. Discuss the mechanics of breathing.
6. Write briefly on Micturition reflex.
7. List the different types of Neuroglia and their functions.
8. Write briefly on Blood coagulation.

III. Short Answers on :

(10 x 3 = 30)

1. List the functions of Lysosomes.
2. What is Eosinophilia? Mention any two conditions where there is Eosinophilia.
3. What is Hypertension?
4. What is Apnea? Mention the classification of apnea.
5. List any four functions of Basal Ganglia.
6. List the righting reflexes.
7. Functions of skin.
8. What is Glomerular Filtration Rate? Mention its normal value.
9. Give the main functions of the Spinothalamic tract.
10. Mention the main symptoms in Diabetes mellitus.
