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

[LN 6274] AUGUST 2018 **Sub. Code: 6274**

BPT DEGREE EXAMINATION
FIRST YEAR
(Regulations for the candidates admitted from 2017-2018 onwards)
PAPER III – PHYSIOLOGY AND APPLIED PHYSIOLOGY

Q.P. Code: 746274

Time: Three hours **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Define cardiac output. Explain the factors regulating cardiac output. Add a note on effect of exercise on cardiac output.

2. Describe electron microscopic structure of Skeletal muscle. Discuss the mechanism of Skeletal Muscle Contraction.

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

1. Phagocytosis.
2. Carbon dioxide transport.
3. Cerebrospinal Fluid.
4. Referred pain.
5. Juxta Glomerular Apparatus (JGA).
6. Functions of liver.
7. Neuro endocrinal reflex.
8. Spermatogenesis.

III. Short answers on: **(10 x 2 = 20)**

1. Accommodation reflex.
2. Functions of Haemoglobin.
3. Surfactant.
4. Gastrin.
5. Facilitated diffusion.
6. Oxygen debt.
7. Functions of Hypothalamus.
8. Acromegaly.
9. List of four of functions of plasma proteins.
10. Homeostasis.

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

[LO 6274] FEBRUARY 2019 **Sub. Code: 6274**

BPT DEGREE EXAMINATION
FIRST YEAR
(Regulations for the candidates admitted from 2017-2018 onwards)
PAPER III – PHYSIOLOGY AND APPLIED PHYSIOLOGY

Q.P. Code: 746274

Time: Three hours **Maximum : 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss the origin, course and functions of Pyramidal tract. Add a note on Hemiplegia.

2. Discuss in detail the stages of erythropoiesis and the factors affecting it. Add a note on polycythemia.

II. Write notes on: **(10 x 5 = 50)**

1. Hypoxia.
2. Functions of thyroid hormone.
3. Neuromuscular junction.
4. Contraception.
5. Functions of saliva.
6. Micturition reflex.
7. Short term regulation of blood pressure.
8. Conduction system of heart.
9. Normal E.C.G.
10. Functions of Cerebellum.

III. Short answers on: **(10 x 2 = 20)**

1. List lung volumes and it's normal value.
2. Smooth muscle.
3. List four special features of coronary circulation.
4. Na+ K+ pump.
5. Refractory errors.
6. Diabetes mellitus.
7. What is surfactant?
8. Mention the functions of skin.
9. Heart sounds.
10. Two effects of exercise on Respiration.

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

[LP 6274] AUGUST 2019 **Sub. Code: 6274**

BPT DEGREE EXAMINATION
FIRST YEAR
(Regulations for the candidates admitted from 2017-2018 onwards)
PAPER III – PHYSIOLOGY AND APPLIED PHYSIOLOGY

Q.P. Code: 746274

Time: Three hours **Maximum : 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe in detail with the help of diagrams the molecular mechanism of contraction of Skeletal Muscle. Add a note on rigor mortis.

2. Describe uterine and ovarian changes during different phases of menstrual cycle with neat diagram. Add a note on hormonal changes during menstrual cycle.

II. Write notes on: **(10 x 5 = 50)**

1. Facilitated diffusion.
2. Functions of plasma proteins.
3. Movements of small intestine.
4. Cystometrogram.
5. Functions of glucocorticoids.
6. Types of shock.
7. Artificial respiration.
8. Draw respiratory membrane and explain factors affecting diffusion of gases.
9. What is referred pain? Explain theories associated with it.
10. Functions of middle ear.

III. Short answers on: **(10 x 2 = 20)**

1. Types of T lymphocytes.
2. Sarcomere.
3. Functions of bile salts.
4. What are diuretics? Give two examples.
5. Babinski’s sign and its significance.
6. Dark adaptation in eye.
7. Name hormones involved in calcium homeostasis.
8. Physiological basis of pregnancy tests.
9. Types of sleep.
10. Muscles involved in breathing.

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

[LQ 6274] FEBRUARY 2020 **Sub. Code: 6274**

BPT DEGREE EXAMINATION
FIRST YEAR
(Regulations for the candidates admitted from 2017-2018 onwards)
PAPER III – PHYSIOLOGY AND APPLIED PHYSIOLOGY

Q.P. Code: 746274

Time: Three hours **Maximum : 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe the pathway for Pain in detail. Add a note on Referred pain.

2. Define Glomerular Filtration Rate (GFR). Describe the mechanism of glomerular filtration and the various factors affecting it. Discuss in detail the regulation of GFR.

II. Write notes on: **(10 x 5 = 50)**

1. Facilitated Diffusion.
2. Humoral Immunity.
3. Myasthenia Gravis.
4. Jugular Venous Pressure.
5. Cardio-respiratory changes during exercise.
6. Ovarian cycle.
7. Peptic Ulcer.
8. Auditory pathway.
9. Hypoxia.
10. Synapse.

III. Short answers on: **(10 x 2 = 20)**

1. Reticulocyte.
2. Starling forces acting on capillary wall.
3. Sarcotubular system.
4. Gastrin.
5. Einthoven’s triangle.
6. Functional Residual Capacity.
7. Heart sounds.
8. Placental hormones.
9. Olfactory Pathway.
10. Inverse stretch reflex.

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

[LR 1220] **DECEMBER 2020** **Sub. Code: 6274**
(AUGUST 2020 EXAM SESSION)

BPT DEGREE EXAMINATION
FIRST YEAR
(New regulations for the candidates admitted from 2017-2018 onwards)
PAPER III – PHYSIOLOGY AND APPLIED PHYSIOLOGY
Q.P. Code: 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe the countercurrent mechanism of concentration of Urine. Add a note on Diabetes Insipedus.

2. Define Cardiac cycle. Describe the events in various phases with the help of diagrams.

II. Write notes on: **(10 x 5 = 50)**

1. Milk ejection reflex.
2. Hazards of blood transfusion.
3. Ionic events in action potential of nerve.
4. Functions of liver.
5. Hypersecretion of growth hormone.
6. Hormonal changes in various phases of menstrual cycle.
7. Taste pathway.
8. Oxygen hemoglobin dissociation curve.
9. Functions of hypothalamus.
10. Refractive errors of eye.

III. Short answers on: **(10 x 2 = 20)**

1. Difference between primary and secondary active transport.
2. Erythroblastosis fetalis.
3. Motor unit.
4. Functions of large intestine.
5. Hormonal defect in a) Acromegaly b) Cretinism.
6. Reflex arc.
7. State Frank Starling's law of the heart.
8. Define Residual volume, give its clinical significance.
9. Indicators of ovulation.
10. Name the cranial nerves carrying the taste sensation.

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

[BPT 0321] **MARCH 2021** **Sub. Code: 6274**

(AUGUST 2020 EXAM SESSION)

BPT DEGREE EXAMINATION
FIRST YEAR
(New regulations for the candidates admitted from 2017-2018 onwards)
PAPER III – PHYSIOLOGY AND APPLIED PHYSIOLOGY
Q.P. Code: 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. What is a Synapse? Classify synapse. Explain the properties of synapse.

2. Define Erythropoiesis. Explain the different stages of Erythropoiesis. List the factors influencing Erythropoiesis.

II. Write notes on: **(10 x 5 = 50)**

1. Blood Groups.
2. Calcitrophic Hormones.
3. Write about Sarcomere.
4. Hormonal Regulation of menstrual cycle.
5. Explain Spermatogenesis with diagram.
6. Functions of glucocorticoids.
7. Functions of plasma proteins.
8. Types of Jaundice.
9. Effects of exercise on cardiovascular system.
10. Actions of insulin.

III. Short answers on: **(10 x 2 = 20)**

1. Define Homeostasis.
2. Action potential.
3. Functions of kidney.
4. Functions of Cerebellum.
5. Write about in vitro and in vivo Anticoagulants.
6. Refractory period.
7. Saltatory Conduction.
8. Hormones secreted by the posterior pituitary gland.
9. Write about Neuroglia.
10. What is Cyanosis.

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

[BPT 0921] **SEPTEMBER 2021** **Sub. Code: 6274**
(FEBRUARY 2021 EXAM SESSION)

BPT DEGREE EXAMINATION
FIRST YEAR- (Regulations for the candidates admitted from 2017-2018 onwards)
PAPER III – PHYSIOLOGY AND APPLIED PHYSIOLOGY
Q.P. Code : 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Name the three steps in formation of urine. What is Glomerular filtration rate and factors regulating it? Add a note on renal clearance.
2. Define Immunity. What are types of immunity? Discuss the mechanism of cell mediated immunity.

II. Write notes on: **(10 x 5 = 50)**

1. Referred pain.
2. Conducting system of the Heart.
3. What is Cretinism.
4. Intrinsic mechanism of coagulation.
5. Enterohepatic circulation.
6. Define shock. What are the types of shock?
7. Regulatory centres of respiration.
8. Hypothyroidism and hyperthyroidism.
9. Contraceptive methods in female.
10. Passive transport.

III. Short answers on: **(10 x 2 = 20)**

1. Difference between cortical and juxta–medullary nephrons.
2. Formation of hydrochloric acid.
3. Write about Surfactant.
4. Name two excitatory and two inhibitory neurotransmitters.
5. Draw a neat diagram of a Nephron and label its parts.
6. Define stroke volume and what is the normal value?
7. Wallerian degeneration.
8. Salivary enzymes.
9. Succus entericus and its enzymes.
10. Pace maker of the heart.

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

[BPT 0122] JANUARY 2022 Sub. Code: 6274
(AUGUST 2021 EXAM SESSION)

BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
FIRST YEAR- (Regulation from 2017-2018 onwards)
PAPER III – PHYSIOLOGY AND APPLIED PHYSIOLOGY
Q.P. Code : 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Define arterial blood pressure. Discuss in detail about the regulation of arterial BP. Add a note on Hypertension.
2. Describe the transport of carbon dioxide in Blood.

II. Write notes on: **(10 x 5 = 50)**

1. Erythroblastosis fetalis.
2. Excitation-contraction coupling.
3. Passive and active transport.
4. Artificial respiration – types.
5. Cardiac output and factors regulating it.
6. Structure and functions of synapse.
7. Optic pathway.
8. Brown Sequard syndrome.
9. Diabetes Mellitus.
10. Mechanism of Hydrochloric Acid secretion.

III. Short answers on: **(10 x 2 = 20)**

1. Properties of RBC.
2. Functions of bile.
3. Types of muscle.
4. List any four functions of cerebellum.
5. Functions of placenta.
6. Name any four GI hormones.
7. Inspiratory Reserve Volume.
8. Surfactant and its function.
9. All or None law.
10. Name the hormones involved in Regulation of water balance in our body.

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

[BPT 0622] JUNE 2022 Sub. Code: 6274
(FEBRUARY 2022 EXAM SESSION)

BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
FIRST YEAR- (Regulation from 2017-2018 onwards)
PAPER III – PHYSIOLOGY AND APPLIED PHYSIOLOGY
Q.P. Code : 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Define cardiac output and describe the factors regulating it.

2. Define and classify immunity. Explain in detail about humoral immunity.

II. Write notes on: **(10 x 5 = 50)**

1. Cerebellum.
2. Homeostasis.
3. Heart sounds.
4. Draw a typical Action potential of nerve & explain its ionic basis.
5. Juxtaglomerular apparatus.
6. Deglutition.
7. Menstural cycle.
8. Functions of skin.
9. Sarcomere.
10. Functions of cortisol.

III. Short answers on: **(10 x 2 = 20)**

1. Function of mitochondria.
2. Apoptosis.
3. Surfactant.
4. Addison’s disease.
5. Cross matching.
6. Carbamino haemoglobin.
7. Cystometrogram.
8. Hirschsprung’s disease.
9. Puberty.
10. FEV1.

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

[BPT 1022] **OCTOBER 2022** **Sub. Code: 6274**
(AUGUST 2022 EXAM SESSION)

BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
FIRST YEAR- (Regulation from 2017-2018 onwards)
PAPER III – PHYSIOLOGY, APPLIED PHYSIOLOGY
Q.P. Code : 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe in detail about excitation contraction coupling of skeletal muscle.

2. Describe in detail about the ovarian, hormonal and uterine changes of different phases of Menstrual Cycle.

II. Write notes on: **(10 x 5 = 50)**

1. Micturition reflex.
2. Phagocytosis.
3. Conductive system of heart.
4. Neuron.
5. Homeostasis of temperature.
6. Digestion and absorption of Fat.
7. Difference between UMN lesion and LMN lesion.
8. Pressure and volume changes of lung.
9. Functions of Plasma proteins.
10. Olfactory pathway.

III. Short answers on: **(10 x 2 = 20)**

1. Metabolic acidosis.
2. Hypoxia.
3. Rigor mortis.
4. Mitosis.
5. Gigantism.
6. Extraocular muscle.
7. Osmosis.
8. Achalasia cardia.
9. Tight junction.
10. Colour blindness.

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

[BPT 0423] APRIL 2023 Sub. Code: 6274
(FEBRUARY 2023 EXAM SESSION)

BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
FIRST YEAR - (Regulation from 2017-2018 onwards)
PAPER III – PHYSIOLOGY, APPLIED PHYSIOLOGY

Q.P. Code: 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Name the hormones of Anterior Pituitary and Posterior Pituitary gland. Write about its action in detail.

2. Describe the transport of Oxygen from Lungs to Tissues. Add a note on Hypoxia.

II. Write notes on: **(10 x 5 = 50)**

1. Negative Feedback Mechanism.
2. Type of Leucocytes and its Functions.
3. Neuromuscular Junction.
4. Contraception.
5. Hypertension.
6. Renin Angiotensin Aldosterone system.
7. Jugular Venous Pressure.
8. Functions of Cerebrospinal Fluid.
9. Cardiovascular changes during Exercise.
10. Auditory pathway.

III. Short answers on: **(10 x 2 = 20)**

1. Facilitated Diffusion.
2. Define Homeostasis.
3. List the Functions of Kidney.
4. What are the receptors of Vision?
5. Components of Conducting System of Heart.
6. Define Blood Pressure.
7. Classify Immunity.
8. What is Cushing’s syndrome?
9. Draw a neat diagram of Neuron and name its parts.
10. Law of Intestine.

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

[BPT 1123] **NOVEMBER 2023** **Sub. Code: 6274**
(AUGUST 2023 EXAM SESSION)

BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
FIRST YEAR - (Regulation from 2017-2018 onwards)
PAPER III – PHYSIOLOGY, APPLIED PHYSIOLOGY

Q.P. Code: 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe the nuclei, connections and functions of cerebellum with suitable diagram.

2. Explain about oxygen transport through blood and explain in detail Oxygen Dissociation Curve and add a note on its left and right shift.

II. Write notes on: **(10 x 5 = 50)**

1. Calcium metabolism.
2. Skin.
3. Erythropoiesis.
4. Micturition reflex.
5. Contraception.
6. Wallerian degeneration and regeneration.
7. Growth Hormone.
8. Visual pathway.
9. Lung volumes and capacities.
10. Glomerular Filtration Rate.

III. Short answers on: **(10 x 2 = 20)**

1. Functions of Golgi apparatus.
2. Saltatory conduction.
3. Apnea.
4. Haemophillia.
5. Oedema.
6. Direct light reflex.
7. Function of platelets.
8. Syncope.
9. Peptic ulcer.
10. Dialysis.

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

[BPT 0824] **AUGUST 2024** **Sub. Code: 6274**

BACHELOR OF PHYSIOTHERAPY DEGREE EXAMINATION
FIRST YEAR - (Regulation from 2017-2018 onwards)
PAPER III – PHYSIOLOGY, APPLIED PHYSIOLOGY

Q.P. Code: 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss in detail about the Atrial and Ventricular events of cardiac cycle.

2. Describe the neural and chemical regulation of Respiration.

II. Write notes on: **(10 x 5 = 50)**

1. Mechanism of formation of HCL.
2. Functions of Glucocorticoids.
3. Structure and function of Nephron.
4. Define Shock. What are the types of shock?
5. Auditory pathway.
6. Pyramidal tract.
7. Composition and functions of bile.
8. Test for ovulation.
9. Passive transport.
10. Structure of Sarcomere.

III. Short answers on: **(10 x 2 = 20)**

1. Cross matching.
2. Oxygen debt.
3. Name the phases of menstrual cycle.
4. Phagocytosis.
5. Motor unit.
6. What is muscle tone?
7. Diuretics.
8. Name any four GI hormones.
9. Dead space.
10. Apoptosis.

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

[BPT 0225] **FEBRUARY 2025** **Sub. Code: 6274**

BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
FIRST YEAR - (Regulation from 2017-2018 onwards)
PAPER III – PHYSIOLOGY, APPLIED PHYSIOLOGY

Q.P. Code: 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe the Uterine and Ovarian changes during different phases of menstrual cycle with neat diagram. Add a note on Menopause.

2. Define Cardiac Cycle. Explain the Events in different phases of Cardiac Cycle with illustrative diagrams.

II. Write notes on: **(10 x 5 = 50)**

1. Cell Structure and its Organelles.
2. Neuro endocrine reflex.
3. Gastric Motility.
4. Cystometrogram.
5. Function of Thalamus.
6. Cell mediated Immunity.
7. Anemia and its types.
8. Functions of Thyroid Hormone.
9. Taste Pathway.
10. Mechanism of salivary secretion and its functions.

III. Short answers on: **(10 x 2 = 20)**

1. Heart sounds.
2. What is Surfactant?
3. Vital Capacity.
4. Refractive Errors.
5. Name the Hormones involved in Calcium Homeostasis.
6. Einthoven’s law.
7. Osmosis.
8. What is Artificial Kidney?
9. Colour Blindness.
10. Motor Unit.

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

[BPT 0825] **AUGUST 2025** **Sub. Code: 6274**

BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
FIRST YEAR - (Regulation from 2017-2018 onwards)
PAPER III – PHYSIOLOGY, APPLIED PHYSIOLOGY

Q.P. Code: 746274

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe the structure of platelets with a neat diagram. Write a note on functions of platelets.

2. Draw and describe the structure of sarcomere. Write about the properties of skeletal muscle.

II. Write notes on: **(10 x 5 = 50)**

1. Peculiarities of coronary circulation.
2. Artificial respiration.
3. Composition and functions of bile.
4. Define micturition. Write a note on cystometrogram.
5. Physiological actions of growth hormone.
6. Mention the differences between Lower motor neuron and upper motor neuron lesions.
7. Transport of carbon dioxide.
8. Draw and describe the different layers of retina.
9. Define puberty. What are the changes that occur during puberty?
10. Draw and describe the neuromuscular junction.

III. Short answers on: **(10 x 2 = 20)**

1. Functions of large intestine.
2. Mention the two major blood group systems.
3. Mention the layers of skin.
4. How first and second heart sounds are produced?
5. Write any two functions of white blood cells.
6. Name the cells in the Islets of Langerhans and their secretions.
7. Mention any two male contraceptive methods.
8. Name the three processes by which urine is formed?
9. Mention any two functions of cerebrospinal fluid.
10. Name the different types of taste sensation.

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