

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

[BSCN 0823]

AUGUST 2023

Sub. Code: 2302

(APRIL 2023 EXAM SESSION)

B.Sc. (Nursing) DEGREE EXAMINATION

(Revised Regulations for the candidates admitted from 2022-2023 onwards)

FIRST SEMESTER

PAPER II – APPLIED ANATOMY & APPLIED PHYSIOLOGY

Q.P. Code: 652302

Time : Three Hours

Maximum : 75 Marks

Answer Section A and Section B Separately

Answer all the Questions

SECTION – A (37 Marks)

(APPLIED ANATOMY)

I. Multiple choice Questions:

(6 x 1 = 6)

Choose one correct answer in the Answer Script. No overwriting should be done.

Choice should be given in Capital Letters.

1. Coronary arteries are the branch of
A) Arch of aorta B) Ascending aorta C) Descending aorta D) Pulmonary artery
2. Example for Ball and Socket joint
A) Knee joint B) Shoulder joint C) Elbow joint D) Wrist joint
3. Which of the following nerve supply the Biceps muscle?
A) Ulnar nerve B) Median nerve C) Radial nerve D) Musculo Cutaneous nerve
4. Hepatopancreatic duct opens into
A) First part of duodenum B) Second part of duodenum C) Jejunum D) Ileum
5. Cavity present in the hindbrain
A) Lateral ventricle B) Third ventricle C) Fourth ventricle D) Cerebral aqueduct
6. How many pairs of Spinal nerves present in thoracic level of Spinal cord
A) 8 B) 5 C) 12 D) 4

II. Essay:

(1 x 10 = 10)

1. Describe in detail about the arterial supply and venous drainage of heart with its Applied Anatomy?

III. Short answers:

(3 x 5 = 15)

1. Gluteus maximus muscle and mention the structures covered by it.
2. External features and relations of Kidney.
3. Features of Synovial joint and its classification.

IV. Very short answers:

(3 x 2 = 6)

1. Name the paranasal air sinuses.
2. Name the ventricles of Brain.
3. Different positions of Vermiform appendix.

SECTION – B (38 Marks)
(APPLIED PHYSIOLOGY)

I. Multiple choice Questions:

(7 x 1 = 7)

Choose one correct answer in the Answer Script. No overwriting should be done. Choice should be given in Capital Letters.

1. If there is an injury in the hypothalamus region of the brain, it is most likely to affect
A) regulation of body temperature B) decision making
C) co-ordination during locomotion D) control of emotions
2. Which has the greatest renal clearance?
A) Para-aminohippuric acid (PAH) B) Glucose C) Inulin D) Urea
3. Which structure regulates the size of the pupil?
A) Sclera B) Iris C) Cornea D) Retina
4. Effects of hypothyroidism include all of the following except
A) Diarrhoea B) Lethargy C) Cold intolerance D) Weight gain
5. On the heart, the impact of adrenaline is all of these except that
A) it increases the cardiac output B) it increases the myocardial contractility
C) it increases blood pressure D) it decreases the heart rate
6. The maximum volume of air contained in the lung after a full forced inhalation is called
A) Tidal volume B) Vital capacity C) Ventilation rate D) Total lung capacity
7. The Sodium- Potassium ATPase pump is
A) An Uniporter B) A Symporter
C) An Antiporter D) An example of Secondary Active transport.

II. Essay:

(1 x 10 = 10)

1. Define Erythropoiesis. Describe in detail about the stages of Erythropoiesis. Add a note on maturation factors.

III. Short answers:

(3 x 5 = 15)

1. Explain the composition and Functions of CSF.
2. Oxygen Transport
3. Write about the composition and functions of Saliva.

IV. Very short answers:

(3 x 2 = 6)

1. Name the Neuroglia.
2. Name the refractory errors of the Eye.
3. Name any four functions of Placenta.

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

[BSCN 1223]

DECEMBER 2023

Sub. Code: 2302

(OCTOBER 2023 EXAM SESSION)

B.Sc. (Nursing) DEGREE EXAMINATION

(Revised Regulations for the candidates admitted from 2022-2023 onwards)

FIRST SEMESTER

PAPER II – APPLIED ANATOMY & APPLIED PHYSIOLOGY

Q.P. Code: 652302

Time : Three Hours

Maximum : 75 Marks

Answer Section A and Section B Separately

Answer all the Questions

SECTION – A (37 Marks)

(APPLIED ANATOMY)

I. Multiple choice Questions:

(6 x 1 = 6)

Choose one correct answer in the Answer Script. No overwriting should be done.

Choice should be given in Capital Letters.

1. Principal muscle of respiration
A) Sternocleidomastoid B) Abdominal muscles C) Diaphragm D) Scalenus muscles
2. Name the epithelium lining the urinary bladder
A) Simple epithelium B) Transitional epithelium
C) Columnar epithelium D) Cuboidal epithelium
3. Right side subclavian Artery is a branch of
A) Arch of Aorta B) Carotid Artery C) Brachiocephalic trunk D) Brachial Artery
4. Which of the following nerve supply the Deltoid muscle?
A) Median nerve B) Radial nerve C) Ulnar nerve D) Axillary nerve
5. Which of the following is the feature of cardiac muscle?
A) Multinucleated B) Intercalated disc C) Branched D) Both B and C
6. Lower extend of adult spinal cord.
A) L 1 B) L 3 C) S 2 D) First coccyx

II. Essay:

(1 x 10 = 10)

1. Mention the Endocrine glands and describe in detail about the Thyroid gland with applied anatomy.

III. Short answer:

(3 x 5 = 15)

1. Structure and Lymphatic drainage of Mammary gland.
2. Pleura and its recesses.
3. Diaphragm.

IV. Short answers on:

(3 x 2 = 6)

1. Parts of Fallopian tube.
2. Layers of Skin.
3. Difference between Skeletal muscles and Cardiac muscle.

SECTION – B (38 Marks)
(APPLIED PHYSIOLOGY)

I. Multiple choice Questions: (7 x 1 = 7)
Choose one correct answer in the Answer Script. No overwriting should be done.
Choice should be given in Capital Letters.

1. Neurotransmitters are substances
 - A) produced by muscles
 - B) signal molecules released at synapses
 - C) carry electrical impulses
 - D) found in neurons with myelin sheaths
2. The difference in voltage between the inside and outside of a resting cell is called
 - A) Resting potential
 - B) Action potential
 - C) Depolarization
 - D) Repolarization
3. Corpus callosum connects
 - A) Two cerebral hemispheres
 - B) Diencephalon and midbrain
 - C) Medulla and Spinal cord
 - D) Pons and Medulla
4. Which of the following is NOT a plasma protein?
 - A) Fibrinogen
 - B) Albumin
 - C) Globulin
 - D) Fibronectin
5. Name the term given to the failure of bone marrow to produce RBC
 - A) Aplastic anemia
 - B) Hemolytic anemia
 - C) Thalassemia
 - D) Megaloblastic anemia
6. These cells of the testes secrete testosterone
 - A) Sertoli cells
 - B) Cells of germinal epithelium
 - C) Leydig cells
 - D) Secondary spermatocytes
7. In man, Cryptorchidism is the condition when
 - A) testes do not descend into the scrotum
 - B) there are two testes in each scrotum
 - C) testes degenerates in the scrotum
 - D) testes enlarges in the scrotum

II. Essay: (1 x 10 = 10)

1. Describe in detail with a help of diagram the mechanism of Skeletal Muscle contraction.

III. Short answers: (3 x 5 = 15)

1. What is Glomerular Filtration Rate? Add a note on the factors affecting GFR.
2. Conducting system of the Heart.
3. Write in detail about Visual pathway.

IV. Very short answers: (3 x 2 = 6)

1. Define Peristalsis.
2. What is chloride shift?
3. Mention any two clinical features of Acromegaly.

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

[BSCN 1024]

OCTOBER 2024

Sub. Code: 2302

B.Sc. (Nursing) DEGREE EXAMINATION

FIRST SEMESTER

PAPER II – APPLIED ANATOMY & APPLIED PHYSIOLOGY

Q.P. Code: 652302

Time : Three Hours

Maximum : 75 Marks

Answer Section A and Section B Separately

Answer all the Questions

SECTION – A (37 Marks)

(APPLIED ANATOMY)

I. Multiple Choice Questions:

(6 x 1 = 6)

1. The basic structural unit of the brain is
A) Neuron B) Loop of Henle C) Pyramid D) Nephron
2. The epithelium lining the intestines is
A) Simple epithelium B) Transitional epithelium
C) Columnar epithelium D) Cuboidal epithelium
3. Which of the following is a part of the brainstem?
A) Hypothalamus B) Cerebellum C) Spinal cord D) Pons
4. Masseter muscle is attached to
A) Ribs B) Femur C) Humerus D) Mandible
5. Islets of Langerhans are seen in
A) Pancreas B) Heart C) Liver D) Kidney
6. The branches of arch of aorta _____
A) Left common Carotid artery B) Left subclavian artery
C) Brachiocephalic artery D) All of the above

II. Essay:

(1 x 10 = 10)

1. Describe Uterus under following headings:
a) Location and Relations b) Normal position c) Supports
d) Blood supply d) Applied Anatomy.

III. Short answers on:

(3 x 5 = 15)

1. Pericardial sinuses.
2. Corpus callosum.
3. Median cubital vein.

IV. Very short answers on:

(3 x 2 = 6)

1. Types of Cartilage with examples.
2. Terminal branches of brachial artery.
3. Which major opening of the diaphragm is present within the central tendon?
Mention the vertebral level.

SECTION – B (38 Marks)
(APPLIED PHYSIOLOGY)

I. Multiple choice Questions:

(7 x 1 = 7)

1. What pigment gives yellow color to the feces
A) Urobilin B) Bilirubin C) Stercobilin D) Biliverdin
2. Blood testes barrier is formed by
A) Basal lamina and Leydig cells
B) Basal lamina and spermatogonia
C) Tight junctions between adjacent Leydig cells
D) Tight junctions between adjacent Sertoli cells
3. Which is an exchange vessel?
A) Artery B) Vein C) Capillary D) Venule
4. The term 'Apnea' refers to
A) Slow breathing B) Absence of breathing
C) Difficulty in breathing D) Fast breathing
5. What does P wave in ECG denote?
A) Atrial depolarization B) Ventricular depolarization
C) Atrial repolarization D) Ventricular repolarization
6. Main excitatory transmitter in the brain and spinal cord and is responsible for about 75% of excitatory synapses in the brain
A) Aspartate B) Glutamate
C) Gamma-aminobutyric acid (GABA) D) Glycine
7. Select the correct combination
A) G cell: Renin B) Chief cell: Insulin
C) Brush border enzyme: Enterokinase D) Mucous cell: Hydrochloric acid (HCl)

II. Essay:

(1 x 10 = 10)

1. List the different phases of the cardiac cycle mentioning the changes in each phase.

III. Short answers on:

(3 x 5 = 15)

1. List the difference between innate and adaptive immunity.
2. What is Menstrual Cycle? Explain the uterine changes taking place during the different phases Menstrual cycle.
3. Structure and functions of Skin.

IV. Very short answers on:

(3 x 2 = 6)

1. List any two non-respiratory functions of Respiratory System.
2. Write any four functions of Liver.
3. List the two types of Nephrons and mention any two differentiating features.

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

[BSCN 0625]

**JUNE 2025
(MAY 2025 EXAM SESSION)**

Sub. Code: 2302

B.Sc. (Nursing) DEGREE EXAMINATION

FIRST SEMESTER

APPLIED ANATOMY & APPLIED PHYSIOLOGY

Q.P. Code: 652302

Time : Three Hours

Maximum : 75 Marks

Answer Section A and Section B Separately

Answer all the Questions

SECTION – A (37 Marks)

(APPLIED ANATOMY)

I. Multiple Choice Questions:

(6 x 1 = 6)

1. A fertilized ovum is called as
A) Blastocyst B) Secondary oocyte C) A diploid cell D) A zygote
2. The skin belongs to the _____ system
A) Nervous system B) Integumentary system C) Circulatory system D) Muscular system
3. Based on action, muscles are classified into
A) Sympathetic & Parasympathetic B) Voluntary & Involuntary
C) Autonomic & Sympathetic D) Autonomic & Voluntary
4. Glucagon is produced in the pancreas by which cells?
A) Alpha cells B) Beta cells C) Delta cell D) F cells
5. Blood from heart flows through the blood vessels in which order?
A) Veins, Arterioles, Capillaries, Venules, Arteries
B) Capillaries, Arterioles, Arteries, Venules, Veins
C) Arteries, Arterioles, Capillaries, Venules, Veins
D) Arterioles, Capillaries, Arteries, Venules, Veins
6. How many pairs of cranial nerves originate in Brain?
A) 8 B) 10 C) 12 D) 14

II. Essay:

(1 x 10 = 10)

1. Describe the Thyroid gland. Write about its location, parts, coverings, blood supply and applied anatomy.

III. Short answers on:

(3 x 5 = 15)

1. Cerebrospinal fluid, formation and drainage.
2. Describe the functional areas of cerebral cortex.
3. Describe the types of cartilage and its function.

IV. Very short answers:

(3 x 2 = 6)

1. Inferior vena cava.
2. Axial skeleton.
3. Coronary arteries – nursing implications.

SECTION – B (38 Marks)
(APPLIED PHYSIOLOGY)

I. Multiple choice Questions:

(7 x 1 = 7)

1. Pyramidal tracts are concerned with _____
A) Voluntary movements B) Myelinogenesis
C) Renshaw cell inhibition D) Saltatory conduction
2. _____ are the protein substances which plays an important role in growth and functioning of the nervous tissue
A) Neurotrophins B) Myelin sheath C) Glial cells D) Astrocytes
3. In _____ the refractive power of lens is usually normal but the anteroposterior diameter of the eyeball is abnormally long
A) Astigmatism B) Myopia C) Hypermetropia D) Emmetropia
4. The duration of cardiac cycle is _____
A) 0.008 sec B) 0.7 sec C) 0.8 sec D) 0.1 sec
5. Trachea and Bronchii are together called as _____
A) Tracheobronchial tree B) Intrapleural fluids
C) Segments D) Haustra
6. Stimulation of parasympathetic nerve causes:
A) Relaxation of detrusor muscle
B) Contraction of internal sphincter
C) Contraction of detrusor muscle and relaxation of internal sphincter
D) Inspiration
7. _____ plays an important role in the hemopoietic function in the embryo
A) Kidney B) Liver C) Spleen D) Brian

II. Essay:

(1 x 10 = 10)

1. What is Cardiac cycle? Explain in detail about the atrial and ventricular events in the cardiac cycle.

III. Short answers on:

(3 x 5 = 15)

1. List out the functions of Hypothalamus.
2. Explain all the lung volumes and lung capacities.
3. Explain the steps involved in blood clotting process.

IV. Very short answers on:

(3 x 2 = 6)

1. What are the types of muscle contraction?
2. Draw a neat labeled diagram of a Neuron.
3. What is Deglutition? What are the stages of Deglutition?

[BSCN 0625]

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

[BSCN 1125]

NOVEMBER 2025

Sub. Code: 2302

B.Sc. (Nursing) DEGREE EXAMINATION
FIRST SEMESTER
APPLIED ANATOMY & APPLIED PHYSIOLOGY

Q.P. Code: 652302

Time : Three Hours

Maximum : 75 Marks

Answer Section A and Section B Separately

Answer all the Questions

SECTION – A (37 Marks)

(APPLIED ANATOMY)

I. Multiple Choice Questions:

(6 x 1 = 6)

1. The precise site of Gaseous exchange within the Lungs is
A) Nasal mucosa B) The bronchi C) Alveoli D) The bronchioles
2. The Male Gonads are called
A) The testes B) The Ovaries C) The accessory sex gland D) The Vas deferens
3. Intervertebral disc and Pubic Symphysis are made up of
A) Elastic cartilage B) Hyaline cartilage C) Fibro cartilage D) Costal cartilage
4. Bone cells are called as
A) Chondrocytes B) Erythrocytes C) Leukocytes D) Osteocytes
5. Grave yard of RBC is
A) Spleen B) Liver C) Thymus D) Kidney
6. The Thyroid Gland
A) Is located inferior to the larynx B) Produces antidiuretic hormone
C) Secretes small amount of Insulin D) Helps initiate milk production

II. Essay:

(1 x 10 = 10)

1. Describe the parts of Alimentary system and accessory Glands of digestion. Describe the stomach in detail and its implications in nursing.

III. Short answers on:

(3 x 5 = 15)

1. Describe the types of cartilage and its function.
2. Describe the muscles of tongue and its function.
3. Gluteus muscles – Implications in nursing.

IV. Very short answers:

(3 x 2 = 6)

1. Muscular artery.
2. Types of bones.
3. Synovial joint.

SECTION – B (38 Marks)
(APPLIED PHYSIOLOGY)

I. Multiple choice Questions:

(7 x 1 = 7)

1. Which of the following cells in the pancreas make insulin?
A) Epithelial cells B) Hepatic cells C) Germ cells D) Islet cells
2. Which of the following instrument is used to listen to the internal sounds of the human body?
A) Sphygmomanometer B) Suction device C) Stethoscope D) Reflex hammer
3. Increase in ECF volume and blood volume finally leads to
A) Increase in Blood Pressure B) Decrease in Blood Pressure
C) Increase in Cardiac output D) Decrease in Cardiac output
4. Lesion in optic nerve will cause
A) Total blindness B) Night blindness C) Myopia D) Hypermetropia
5. Permanent sterilization method in male is called as
A) Tubectomy B) Vasectomy C) Dilatation and Curettage D) Copper T
6. _____ is defined as the period during which the muscle does not respond to a second stimulus
A) Cardiac cycle B) Cardiac output C) Refractory period D) Heart rate
7. Which develops by the rupture of a blood vessel and spilling of blood?
A) Hemorrhagic shock B) Hypovolemic shock
C) Circulatory shock D) Cardiogenic shock

II. Essay:

(1 x 10 = 10)

1. What is GFR? What is its normal value? Describe in detail about the process involved in Urine formation.

III. Short answers on:

(3 x 5 = 15)

1. Explain the electrical events taking place in neuromuscular junction with neat labeled diagram. (4+1)
2. Explain Atrial events of Cardiac cycle.
3. What are the actions of Growth hormone?

IV. Very short answers on:

(3 x 2 = 6)

1. State Landsteiner's law.
2. Spermatogenesis.
3. What is Phagocytosis?
