SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF MEDICAL ELECTRONICS

QUESTION BANK

III SEMESTER

1910302 ANATOMY AND HUMAN PHYSIOLOGY

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Prepared by

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SUBJECT : 1910302 ANATOMY AND HUMAN PHYSIOLOGY

SEM / YEAR: III / II

UNIT I –CELL AND TISSUE STRUCTURE			
Structure of cell – Structure and functions of sub organelle – Cell Membrane – Transport across cell membrane – Action potential – Cell to cell signaling – Cell division – Types of specialized tissues – Functions.			
PART –A			
Q.No	**Questions**	**BT Level**	**Domain**
1.	Define Cell and organelle.	**BTL 1**	Remembering
2.	Point out the general functions of a nucleoli.	**BTL 4**	Analyzing
3.	Name the types of cytoskeletal elements that are involved in cell mobility.	**BTL 1**	Remembering
4.	State the term Action Potential.	**BTL 1**	Remembering
5.	Explain which muscle types are injured when you pull a musclewhile exercising?	**BTL 4**	Analyzing
6.	List different processes through which transportation of substances occurs between cell.	**BTL 1**	Remembering
7.	Illustrate the major role of Microvilli.	**BTL 3**	Applying
8.	What are the two types of facilitated diffusion and how do they differ?	**BTL 2**	Understanding
9.	Outline the phases of cell division.	**BTL 2**	Understanding
10.	Describe the four structural components of the plasma membrane and the function of each.	**BTL 2**	Understanding
11.	Apply the concept of osmosis and explain how passive transport occurs in cell.	**BTL 3**	Applying
12.	Identify which process is more selective—pinocytosis or receptor-mediated endocytosis.	**BTL 3**	Applying
13.	Organize the role of mRNA in Protein synthesis.	**BTL 3**	Applying
14.	How do the cytosol and the cytoplasm differ?	**BTL 4**	Analyzing
15.	Analyze the criteria that could distinguish epithelial tissues from other tissues.	**BTL 4**	Analyzing
16.	Analyze the process of wound healing.	**BTL 4**	Analyzing
17.	Discuss the following: “Nervous tissues are irritable”.	**BTL 2**	Understanding
18.	Demonstrate why an organ is permanently damages if its cells are amitotic.	**BTL 3**	Applying
19.	Examine why nucleus is called the control center of the cell? Write its functions.	**BTL 3**	Applying

20.	Hydrocortisone is an anti-inflammatory drug that stabilizes lysosomal membranes. Analyze and predict how this effect reduces cell damage and inflammation.	**BTL 4**		Analyzing
21	Point out the role of mitochondria in a cell.	**BTL 1**		Remembering
22	Write the functions of epithelial tissues.	**BTL 2**		Understanding
23	Mention the components of a cell.	**BTL 1**		Remembering
24	Give the functions of plasma membrane.	**BTL 2**		Understanding
	PART-B			
1.	(i) Describe the concept of cell theory. (ii) Explain in detail about the cell membrane – its compositions and functions.	**(5)** **(8)**	**BTL 1**	Remembering
2.	Identify the organelles on a cell model or describe them, and indicate the major function of each.	**(13)**	**BTL 1**	Remembering
3.	(i) List the structure of the nucleus and explain the function of chromatin and nucleoli. (ii) Why mitochondria are called as Power house of the cell?	**(10)** **(3)**	**BTL 1**	Remembering
4.	Distinguish between benign and malignant neoplasm.	**(13)**	**BTL 1**	Remembering
5.	Illustrate the process of active transport with suitable diagrams.	**(13)**	**BTL 2**	Understanding
6.	Classify the different types of epithelial tissues found in human body.	**(13)**	**BTL 4**	Analyzing
7.	Summarize the steps involved in the process of wound healing.	**(13)**	**BTL 2**	Understanding
8.	Specify the tissue that have their hallmarks as irritable and contractile. Also explain where these tissues are found and state their functions.	**(13)**	**BTL 3**	Applying
9.	Apply the principle of complementarity and classify the cell types by comparing shape, structure and special functions.	**(13)**	**BTL 3**	Applying
10.	Choose the tissue that binds other tissues together. Also summarize their functions, characteristics and body locations.	**(13)**	**BTL 3**	Applying
11.	Compare and contrast the different process involved in transportation of substances across cells.	**(13)**	**BTL 4**	Analyzing
12.	Examine the different phases involved in cell division and explain how cells multiply.	**(13)**	**BTL 4**	Analyzing
13.	Identify the role of DNA and RNA in the process of Protein synthesis.	**(13)**	**BTL 4**	Analyzing
14.	Design a circuit with CRO to record the transient action potentials and discuss in detail about the stages of generation of action potential.	**(13)**	**BTL 2**	Understanding
15.	Write short notes on the different types of muscle tissues in the human body along with its functions.	**(13)**	**BTL 1**	Remembering

16.	Describe the structure and functions of the following organelles: (i) Nucleus (ii) Endoplasmic reticulum	 **(7)** **(6)**	**BTL 2**	Understanding
17.	Explain about the various stages in tissue healing or wound repair.	**(13)**	**BTL 3**	Applying
	PART-C			
1.	Compare and contrast cytokinesis, interphase and mitosis.	**(15)**	**BTL 2**	Understanding
2.	Elaborate in detail "Research Method for Measuring the Effect of Voltage on opening and closing of voltage gated channels – Voltage Clamp".	**(15)**	**BTL 2**	Understanding
3.	Describe the relationship between the diffusion potential andthe concentration difference.	**(15)**	**BTL 1**	Remembering
4.	Formulate the stepwise development of cancer by explaining the concept of Neoplasm.	**(15)**	**BTL 3**	Applying
5	Name the four major tissue types and their chief subcategories. Explain how the four major tissue types differ structurally and functionally.	**(15)**	**BTL 4**	Analyzing

UNIT II –SKELETAL, MUSCULAR AND RESPIRATORY SYSTEMS

Skeletal system: Types of bone and function – Physiology of bone formation – Division of skeleton – types of joints and function – Types of cartilage and function. Muscular system: Parts of muscle – Movements. Respiratory system: Parts of respiratory systems – types of respiration – mechanism of breathing – regulation of respiration.

PART – A

Q.No	Questions	BT Level	Competence
1.	List the three functions of skeletal systems.	**BTL 1**	Remembering
2.	Give the relationship between muscle function and bones.	**BTL 1**	Remembering
3.	Define muscular system.	**BTL 1**	Remembering
4.	Name the organs forming the respiratory passageway from the nasal cavity to the alveoli of the lungs.	**BTL 1**	Remembering
5.	Specify the most basic function of respiration	**BTL 1**	Remembering
6.	Analyze the two chemical factors that modify respiratory rate and depth.	**BTL 4**	Analyzing
7.	Why do bone injuries heal much more rapidly than injuries to cartilage?	**BTL 2**	Understanding
8.	Classify the types of muscles and mention its key feature.	**BTL 2**	Understanding
9.	Give the specific protective function of cilia in the trachea.	**BTL 2**	Understanding
10.	What causes air to flow out of the lungs during expiration?	**BTL 2**	Understanding
11.	Identify two muscles that insert into the calcaneal tendon and what movement do they effect?	**BTL 3**	Applying
12.	The contraction of the diaphragm and the external intercostal muscles begins inspiration. What happens, in terms of volume and pressure changes in the lungs, when these muscles contract?	**BTL 3**	Applying
13.	Applying the process of respiration, draw a graph that shows the compliance diagram in a healthy person.	**BTL 3**	Applying

14.	Examine the difference between the structure of compact bone and the spongy bone.	**BTL 4**		Analyzing
15.	Brief the general function of the axial skeleton to that of the appendicular skeleton.	**BTL 4**		Analyzing
16.	How do the movements promoted by skeletal muscle differ from those promoted by smooth or cardiac muscle?	**BTL 4**		Analyzing
17.	Discuss how the shape of a newborn baby's spine differs from thatof an adult.	**BTL 2**		Understanding
18.	Interpret how the structure of the alveoli makes them an ideal site for gas exchange.	**BTL 3**		Applying
19.	Ninety-year-old lady is groaning in pain. Her grandson has just given her a bear hug. What do you think might have happened to her spine, and what bone condition may she be suffering from?	**BTL 3**		Applying
20.	Dead space volume accounts for about 150 ml of tidal volume. Analyze how much of a tidal breath actually reaches the alveoli?	**BTL 4**		Analyzing
21.	Classify the different types of bones based on its shape.	**BTL 4**		Analyzing
22.	Differentiate long and short bones in the human body based on its anatomy.	**BTL 2**		Understanding
23.	Define Intervertebral disc.	**BTL 1**		Remembering
24.	Interpret the symptoms and causes for rickets.	**BTL 3**		Applying
	PART – B			
1.	(i) What is a fracture? Explain the various types of fractures. (ii) Describe the stages in the healing of a bone fracture.	**(8)** **(5)**	**BTL 1**	Remembering
2.	Write in detail the mechanism of breathing with suitable diagram.	**(13)**	**BTL 1**	Remembering
3.	(i) List and describe the apparent functions of the skeletal system. (ii) Tabulate the difference between the axial skeleton and appendicular skeleton	**(8)** **(5)**	**BTL 1**	Remembering
4.	(i) Define the following respiratory volumes: tidal volume, vital capacity, expiratory reserve volume, inspiratory reserve volume, and residual air. (ii) Draw the graph of various respiratory volumes in a healthy man.	**(10)** **(3)**	**BTL 1**	Remembering
5.	(i) Explain the different types of muscle of upper limb. (ii) Outline the different types of muscle of lower limb.	**(6)** **(7)**	**BTL 2**	Understanding
6.	Describe briefly the process of bone formation in the fetus and summarize the events of bone remodeling throughout the life.	**(13)**	**BTL 2**	Understanding
7.	Compare and contrast the functions of different types of muscles.	**(13)**	**BTL 4**	Analyzing
8.	Using the technique of spirometer, how changes in pulmonary volume is recorded.	**(13)**	**BTL 3**	Applying
9.	With the help of different recording systems, how muscle contractions can be recorded.	**(13)**	**BTL 3**	Applying
10.	Differentiate smooth muscle and skeletal muscle also compare the similarities.	**(13)**	**BTL 2**	Understanding
11.	Explain how the respiratory muscles cause volume changes that lead to air flow into and out of the lungs (breathing).	**(13)**	**BTL 4**	Analyzing

12.	Analyze the different change that occurs in the muscle due to ageing.	**(13)**	**BTL 4**	Analyzing
13.	Describe the different muscular movements in different joints.	**(13)**	**BTL 1**	Remembering
14.	(i) Interpret what happens to muscles when they are exercised regularly? (ii) Should a triathlete engage in aerobic or resistance training? Explain.	**(6)** **(7)**	**BTL 3**	Applying
15.	Categorize briefly on the functions and types of bones in the human body.	**(13)**	**BTL 4**	Analyzing
16.	Explain the general structure of the vertebrae and the vertebral column.	**(13)**	**BTL 2**	Understanding
17.	With a neat diagram, explain the structure of a bone in detail.	**(13)**	**BTL 3**	Applying
	PART – C			
1.	(i) Evaluate how isotonic and isometric contractions differ. (ii) What is muscle tone, and what causes it? What happens to a muscle that loses its tone?	**(8)** **(7)**	**BTL 2**	Understanding
2.	Describe how the skull of a newborn infant (or fetus) differs from that of an adult, and explain the function of fontanels.	**(15)**	**BTL 2**	Understanding
3.	Based on the structural mobility of different joints, suggest different applicational areas of these joint.	**(15)**	**BTL 3**	Applying
4.	Examine the symptoms and probable causes of COPD and lung cancer.	**(15)**	**BTL 1**	Remembering
5.	Explain in detail about the different parts of the respiratory system.	**(15)**	**BTL 4**	Analyzing

UNIT III - CARDIOVASCULAR AND LYMPHATIC SYSTEMS

Cardiovascular system: Component of Blood and function – Blood groups and importance – structure of heart – conducting system of heart – properties of cardiac muscle – cardiac cycle – heart beat – types of blood vessels – regulation of heart rate and blood pressure. Lymphatic system: Parts and functions of lymphatic systems – types of lymphatic organs and vessels.

PART – A

Q.No	Questions	BT Level	Competence
1.	Give the role of hemoglobin in red blood cells.	**BTL 1**	Remembering
2.	Name some factors that may inhibit or enhance the blood-clotting process.	**BTL 1**	Remembering
3.	Define the term cardiac output mean.	**BTL 1**	Remembering
4.	State the definition of Blood Pressure.	**BTL 1**	Remembering
5.	Write about the systole and diastole phases of heart.	**BTL 1**	Remembering
6.	Analyze and list out the functions of lymphatic vessels.	**BTL 4**	Analyzing
7.	Compare an antigen and an antibody.	**BTL 2**	Understanding
8.	Mention the process of hemostasis. Indicate what starts the process.	**BTL 2**	Understanding
9.	In what two important ways is the pulmonary circulation different from the systemic circulation?	**BTL 2**	Understanding
10.	Outline the four common indicators of inflammation.	**BTL 2**	Understanding

11.	Assume you are viewing a blood vessel under the microscope. It has a large, lopsided lumen, relatively thick tunica externa, and a relatively thin tunica media. Which kind of blood vessel is this?	**BTL 3**	Applying
12.	Two elements determine blood pressure—the cardiac output of the heart and the peripheral resistance, or friction, in the blood vessels. Name the factors that increase cardiac output and peripheral resistance.	**BTL 3**	Applying
13.	Brief the process of clonal selection.	**BTL 3**	Applying
14.	How a decrease in the amount of plasma proteins affect the plasma volume?	**BTL 4**	Analyzing
15.	Examine the importance of the heart valves.	**BTL 4**	Analyzing
16.	Specify that how fever helps in protecting the body.	**BTL 4**	Analyzing
17.	Compare how the function of the systemic circulation differ from that of the pulmonary circulation?	**BTL 4**	Analyzing
18.	Interpret different ways in which antibodies act against antigens.	**BTL 3**	Applying
19.	A person is bleeding profusely after being hit by a truck as he was pedaling his bike home. At the hospital, the nurse asked him whether he knew his blood type. He told her that he "had the same blood as most other people." What is his ABO blood type?	**BTL 3**	Applying
20.	Formulate the difference between ABO and Rh blood groups.	**BTL 3**	Applying
21.	Point out the properties of cardiac muscles.	**BTL 4**	Analyzing
22.	State all or none law.	**BTL 2**	Understanding
23.	What are lymph nodes?	**BTL 1**	Remembering
24.	Define the term cardiac cycle.	**BTL 2**	Understanding

PART – B

1.	(i) Define systole, diastole, stroke volume, cardiac cycle. (ii) State the basic principles of circulatory function. (iii) How blood groups are classified?	**(4)** **(5)** **(4)**	**BTL 1**	Remembering
2.	Explain in detail the different composition of blood and listtheir functions.	**(13)**	**BTL 4**	Analyzing
3.	(i) Describe about the microscopic structure of Blood vessels (ii) List the major arteries and veins of systemic circulation.	**(8)** **(5)**	**BTL 1**	Remembering
4.	(i) How the exchanges of substances occur across capillary walls. (ii) Write about the operation of heart valves.	**(6)** **(7)**	**BTL 1**	Remembering
5.	Compare and contrast the different body defense mechanism.	**(13)**	**BTL 4**	Analyzing
6.	(i) Elaborate the mechanism of excitation – contraction coupling and relaxation in cardiac muscle. (ii) Mention the functions of different valves in heart.	**(8)** **(5)**	**BTL 2**	Understanding

7.	How are blood groups classified and how they can be estimated?	**(13)**	**BTL 2**	Understanding
8.	Applying the working principle of heart and valve movement, explain different events of cardiac cycle with a graph.	**(13)**	**BTL 3**	Applying
9.	(i) Using auscultatory method of measurement, explain how the blood pressure is measured. (ii) Explain the various factors that affects the blood pressure.	**(7)** **(6)**	**BTL 2**	Understanding
10.	(i) Organize the homeostatic relationship between the cardiovascular system and other body systems. (ii) Examine and elaborate the homeostatic relationship between the lymphatic system and other body systems.	**(6)** **(7)**	**BTL 3**	Applying
11.	(i) Analyze how action potential is produced in cardiac muscle? (ii) What causes the long action potential and the plateau?	**(3)** **(10)**	**BTL 4**	Analyzing
12.	(i) Examine various factors that modify the basic heart rate. (ii) Summarize the events that occur during cardiac cycle.	**(6)** **(7)**	**BTL 4**	Analyzing
13.	(i) Deduce the relationship of atrial and ventricular contraction to the waves of ECG. (ii) How the rate of heartbeat is determined from the ECG?	**(9)** **(4)**	**BTL 1**	Remembering
14.	Lymphocytes continuously circulate through the body using blood and lymph as their transport vehicles. Discuss the importance of this recirculation behavior. Explain in detail.	**(13)**	**BTL 3**	Applying
15.	Write short notes on hematopoiesis.	**(13)**	**BTL 1**	Remembering
16.	With a neat diagram explain the anatomy of the human heart in detail.	**(13)**	**BTL 3**	Applying
17.	What is blood pressure? Explain the various factors which affect blood pressure.	**(13)**	**BTL 2**	Understanding
PART – C				
1.	(i) Deduce how antibodies help to defend our body. (ii) Interpret functions of cells and molecules involves in immunity.	**(8)** **(7)**	**BTL 2**	Understanding
2.	(i) Explain the different circulation process in cardiovascular system. (ii) Discuss the steps involved in Hemostasis.	**(6)** **(9)**	**BTL 2**	Understanding
3.	When heart is not working, describe about the use of defibrillation method which makes heart function normal.	**(15)**	**BTL 3**	Applying
4.	Describe how a disruption in circulation would result in a stroke.	**(15)**	**BTL 1**	Remembering
5.	Explain the source of lymph, and explain its formation and transport.	**(15)**	**BTL 4**	Analyzing

UNIT IV-NERVOUS SYSTEMS, ENDOCRINE SYSTEMS AND SENSE ORGANS			
Nervous system: Cells of nervous system – types of neuron and synapses – mechanism of nerve impulse – brain – parts of brain – spinal cord – tract and pathways of spines – reflex mechanism – classification of nerves – autonomic nervous system and its functions. Endocrine system: pituitary and thyroid gland. Sense organs: eye and ear.			
PART - A			
Q.No	**Questions**	**BT Level**	**Competence**
1.	List the general functions of nervous system.	**BTL 1**	Remembering
2.	Enumerate the types of cells that make up a nervous tissue.	**BTL 1**	Remembering
3.	Define reflex arc.	**BTL 1**	Remembering
4.	Classify the three major regions of the cerebrum.	**BTL 4**	Analyzing
5.	Categorize and specify the types of synapses.	**BTL 4**	Analyzing
6.	Mention the average normal value of intraocular pressure. Also name the device with which IOP can be measured.	**BTL 1**	Remembering
7.	Compare the difference between a graded potential and action potential.	**BTL 2**	Understanding
8.	Specify the structural and functional classifications of the nervous system.	**BTL 2**	Understanding
9.	Brief the function of ear.	**BTL 2**	Understanding
10.	Outline the term nerve cell.	**BTL 2**	Understanding
11.	Identify different types of neurons by the structural difference.	**BTL 3**	Applying
12.	Apply a small excitation in the hair cells and determine the route of sound waves through ear by providing.	**BTL 3**	Applying
13.	With the help of contact lenses, how correction of optical abnormalities are done?	**BTL 3**	Applying
14.	Analyze how loudness is determined by the auditory system.	**BTL 4**	Analyzing
15.	Give the list of different parts and function of brain stem.	**BTL 4**	Analyzing
16.	Illustrate the after effects of CVAs or stroke.	**BTL 4**	Analyzing
17.	How an action potential is initialized and generated?	**BTL 2**	Understanding
18.	Examine the need for Blood Brain Barrier.	**BTL 3**	Applying
19.	Suggest different techniques with which brain dysfunctions can be diagnosed.	**BTL 3**	Applying
20.	Analyze the methods used to correct cataracts problems that arise due to ageing.	**BTL 4**	Analyzing
21.	Define the term blindspot in the eye.	**BTL 1**	Remembering
22.	What is cataract and why is it caused?	**BTL 2**	Understanding
23.	When does night blindness occur?	**BTL 1**	Remembering
24.	Interpret how rods and cones differ from each other.	**BTL 3**	Applying
PART - B			
1.	Briefly describe the types of synapse. Also explain in detail the physiologic anatomy of synapse.	**(13)** **BTL 1**	Remembering

2.	List the functions of different cells that helps in the building of nerve tissues and give detailed note.	**(13)**	**BTL 1**	Remembering
3.	What is reflex? Explain its mechanism in detail.	**(13)**	**BTL 1**	Remembering
4.	(i) How does the thyroid cellular mechanism for iodine transmission works? (ii) List the effects of thyroid hormones on different systems.	**(6)** **(7)**	**BTL 1**	Remembering
5.	Elaborate the structure and functions of different regions in a brain.	**(13)**	**BTL 2**	Understanding
6.	Outline the different endocrine glands, hormones related to it, their functions and structures.	**(13)**	**BTL 2**	Understanding
7.	(i) Describe the anatomical and physiological features of the Retina. (ii) List the neural cells in retina and its functions.	**(8)** **(5)**	**BTL 2**	Understanding
8.	Explain neurons based on their functions and structure and explain them.	**(13)**	**BTL 4**	Analyzing
9.	Build a process to explain how equilibrium organ maintain balance. Also explain in detail about types of equilibrium.	**(13)**	**BTL 3**	Applying
10.	Using Audiometer, how will you determine the hearing disability of a person?	**(13)**	**BTL 4**	Analyzing
11.	Compare and classify the somatic and autonomic nervous system.	**(13)**	**BTL 3**	Applying
12.	Analyze the structure of spinal cord and describe its anatomy.	**(13)**	**BTL 4**	Analyzing
13.	Describe how retina detects the different gradients of colorin the visual spectrum.	**(13)**	**BTL 1**	Remembering
14.	(i) Examine the various methods that can be employed to measure the various hormone compositions in the blood. (ii) What is hypothyroidism? Suggest a way to diagnose and treat hypothyroidism.	**(6)** **(7)**	**BTL 3**	Applying
15.	Explain the structural and functional classifications of the nervous system.	**(13)**	**BTL 4**	Analyzing
16.	With a neat diagram, describe the anatomy of the human eye.	**(13)**	**BTL 3**	Applying
17.	Identify the structures of the external, middle, and internal ear, and list the functions of each.	**(13)**	**BTL 2**	Understanding
PART - C				
1.	Determine the route of sound wave through the ear and explain the function of different parts of ear it passes by.	**(15)**	**BTL 2**	Understanding
2.	Suggest a method to reduce the errors of refraction in the eyeball with neat sketch.	**(15)**	**BTL 2**	Understanding
3.	Describe the functional relationship between the hypothalamus and the pituitary gland.	**(15)**	**BTL 1**	Remembering
4.	As the aroma of freshly brewed coffee drifted by Joe's nose, his mouth began to water, and his stomach started to rumble. Explain these reactions in terms of ANS activity.	**(15)**	**BTL 3**	Applying
5.	Illustrate with a neat diagram the general structure of a neuron, and name its important anatomical regions.	**(15)**	**BTL 4**	Analyzing

UNIT V - DIGESTIVE AND URINARY SYSTEMS			
Digestive: Organs of Digestive system – Digestion and Absorption. Urinary: Structure of Kidney and Nephron – Mechanisms of Urine formation – Regulation of Blood pressure by Urinary System – Urinary Reflex.			
PART –A			
Q.No	**Questions**	**BT Level**	**Competence**
1.	List the digestive organs making up the alimentary canal.	**BTL 1**	Remembering
2.	State the two main functions of the large intestine.	**BTL 1**	Remembering
3.	Mention the major enzymes involved in digestion.	**BTL 1**	Remembering
4.	What is the structural and functional unit of the kidney?	**BTL 1**	Remembering
5.	Name the four main functions of the kidneys.	**BTL 1**	Remembering
6.	Break down the process of micturition.	**BTL 4**	Analyzing
7.	Write few points on villi, and why are they important?	**BTL 2**	Understanding
8.	Summarize the process of peristalsis.	**BTL 2**	Understanding
9.	Give the location of the kidneys in the body	**BTL 2**	Understanding
10.	Demonstrate the types of problem that mostly affects the urinary system organs.	**BTL 3**	Applying
11.	The stomach epithelium secretes several substances, including alkaline mucus and intrinsic factor. What is the function of each of these two secretions?	**BTL 3**	Applying
12.	Which regulation mechanism is to be applied to maintain a normal body temperature?	**BTL 3**	Applying
13.	To minimize the pH shift that occurs when a strong acid is added to water, would it be better to add a strong base or a weak base? Why?	**BTL 3**	Applying
14.	Why is it necessary for the stomach contents to be so acidic?	**BTL 4**	Analyzing
15.	Show the importance of antidiuretic hormone (ADH) in the regulation of water balance by the kidney	**BTL 4**	Analyzing
16.	How the acid-base balance of the blood is maintained by Kidney?	**BTL 4**	Analyzing
17.	Specify the composition of saliva and list its functions.	**BTL 2**	Understanding
18.	Demonstrate how Na+ balance, ECF volume, and blood pressureare jointly regulated.	**BTL 3**	Applying
19.	If you had your choice, would you prefer to have high blood levels of HDLs or LDLs? Explain your answer.	**BTL 3**	Applying
20.	Analyze the effect of aging on urinary system functioning.	**BTL 4**	Analyzing
21.	Point out the various functions of the kidney.	**BTL 4**	Analyzing

22.	How does appendicitis occur and what is the remedy for this condition?	**BTL 2**	Understanding
23.	Define liver cirrhosis.	**BTL 1**	Remembering
24.	Give the functions of bile.	**BTL 2**	Understanding

PART - B				
1.	(i) List different organs present in the alimentary canal. Mention their anatomy. (ii) Define the anatomical structures that supports digestion by being an accessory organ.	**(13)**	**BTL 1**	Remembering
2.	What are the key functions of digestive system? Describe in detail.	**(13)**	**BTL 1**	Remembering
3.	Describe the general structure and function of ureters, urinary bladder and urethra.	**(13)**	**BTL 1**	Remembering
4.	(i) Explain the functions of Kidney. (ii) Draw the structure of kidney and nephron and explain.	**(5)** **(8)**	**BTL 4**	Analyzing
5.	(i) Outline the steps involved in the gastrointestinal processes and control. (ii) With a flow chart, summarize the digestion and absorption of foodstuffs at different level.	**(8)** **(5)**	**BTL 2**	Understanding
6.	Illustrate how body temperature is regulated with necessary diagram.	**(13)**	**BTL 2**	Understanding
7.	(i) Describe the process of urine formation. (ii) Summarize the pathway of renal blood vessels.	**(7)** **(6)**	**BTL 2**	Understanding
8.	Organize the homeostatic relationship between the digestive system and other body systems. State how digestive system enriches other systems.	**(13)**	**BTL 3**	Applying
9.	Experiment how increased osmolarity of blood plasma initiates the thirst mechanism for regulating water intake.	**(13)**	**BTL 3**	Applying
10.	Identify the various homeostatic relationship between the urinary system and other body systems.	**(13)**	**BTL 4**	Analyzing
11.	Compare and contrast the working mechanism of carbohydrate metabolism and fat metabolism.	**(13)**	**BTL 4**	Analyzing
12.	(i) Analyze the role of ADH in the regulation of water balance by the kidney. (ii) Discuss the mechanism that help to maintain blood pressure with the help of flowchart.	**(7)** **(6)**	**BTL 4**	Analyzing
13.	Outline the consequences of energy balance by explaining the importance of energy balance in body.	**(13)**	**BTL 1**	Remembering
14.	What happens to the rate of RBC production in a patient on dialysis with total renal failure? What could be given to the patient to counteract such a problem?	**(13)**	**BTL 3**	Applying
15.	Explain how villi aid digestive processes in the small intestine.	**(13)**	**BTL 1**	Remembering
16.	Write short notes on the anatomy and functions of the liver and gall bladder.	**(13)**	**BTL 2**	Understanding

17.	Describe the structure of the kidney and explain its functions.	**(13)**	**BTL 3**	Applying

PART - C				
1.	(i) Compare the process of digestion of various food by hydrolysis. (ii) Interpret absorption mechanism of different components carried out at different locations in GI tract.	**(8)** **(7)**	**BTL 2**	Understanding
2.	Explain the abnormal urinary components present in the urine and describe the various ill effects of the presence of these components and how they cause imbalance in a system.	**(15)**	**BTL 2**	Understanding
3.	Compile various reasons for the cause of Peptic ulcer and suggest a way to avoid the same.	**(15)**	**BTL 3**	Applying
4.	What is renal failure? Elaborate the process involved in the treatment of Renal failure by transplantation or by dialysis. Which method has highest success rate?	**(15)**	**BTL 1**	Remembering
5.	Explain the process of urine formation, identifying the areas of the nephron that are responsible for filtration, reabsorption, and secretion.	**(15)**	**BTL 4**	Analyzing