

BOARD OF DIPLOMA IN PHARMACY EXAMINATIONS

D.Pharm — FIRST YEAR | ER-2020 Regulation

MODEL QUESTION PAPER — SET 1

HUMAN ANATOMY AND PHYSIOLOGY (ER20-14T)

Time: 3 Hours
Reg. No. : _____
Max. Marks: 80

***General Instructions:** All sections are compulsory. Figures to the right indicate full marks. Draw neat, labelled diagrams / flowcharts wherever necessary. Answers to Section A (Q. 1–20) must be written together as a single unit.*

SECTION – A | Multiple Choice Questions

20 × 1 = 20 Marks

*Answer **ALL** questions. Each question carries 1 mark.*

Q1. The structural and functional unit of the human body is the

- | | |
|------------|------------|
| (a) Tissue | (b) Cell |
| (c) Organ | (d) System |

Q2. The powerhouse of the cell is the

- | | |
|--------------|------------------|
| (a) Nucleus | (b) Mitochondria |
| (c) Ribosome | (d) Lysosome |

Q3. The total number of bones in the adult human body is

- | | |
|---------|---------|
| (a) 206 | (b) 208 |
| (c) 210 | (d) 300 |

Q4. Which type of tissue lines body cavities and covers surfaces?

- | | |
|----------------|----------------|
| (a) Muscular | (b) Nervous |
| (c) Epithelial | (d) Connective |

Q5. The liquid part of blood is called

- | | |
|-----------|---------------|
| (a) Serum | (b) Plasma |
| (c) Lymph | (d) Platelets |

Q6. The normal pH of human blood is approximately

- | | |
|---------|---------|
| (a) 5.4 | (b) 6.4 |
| (c) 7.4 | (d) 8.4 |

Q7. Which blood cells are responsible for oxygen transport?

- | | |
|---------------|------------------|
| (a) WBC | (b) RBC |
| (c) Platelets | (d) Plasma cells |

Q8. The universal donor blood group is

- | | |
|--------|----------------|
| (a) A | (b) B |
| (c) AB | (d) O negative |

Q9. The pacemaker of the heart is the

- | | |
|-------------------|---------------------|
| (a) AV node | (b) SA node |
| (c) Bundle of His | (d) Purkinje fibres |

Q10. The normal heart rate in a resting adult is about

- | | |
|-----------------|-------------|
| (a) 40–50/min | (b) 72/min |
| (c) 100–120/min | (d) 150/min |

Q11. Which chamber pumps oxygenated blood to the whole body?

- | | |
|--------------------|---------------------|
| (a) Right atrium | (b) Right ventricle |
| (c) Left ventricle | (d) Left atrium |

Q12. The exchange of gases in the lungs occurs in the

- | | |
|-------------|-------------|
| (a) Bronchi | (b) Trachea |
| (c) Alveoli | (d) Pharynx |

Q13. The functional unit of the kidney is the

- | | |
|--------------|-------------|
| (a) Neuron | (b) Nephron |
| (c) Alveolus | (d) Villus |

Q14. Insulin is secreted by the

- | | |
|-------------------|----------------------------|
| (a) Thyroid | (b) Beta cells of pancreas |
| (c) Adrenal gland | (d) Liver |

Q15. Which part of the brain controls balance and coordination?

- | | |
|--------------|----------------|
| (a) Cerebrum | (b) Cerebellum |
| (c) Medulla | (d) Pons |

Q16. The largest gland in the human body is the

- | | |
|--------------|---------------|
| (a) Thyroid | (b) Liver |
| (c) Pancreas | (d) Pituitary |

Q17. Bile is produced by the

- | | |
|------------------|--------------|
| (a) Gall bladder | (b) Liver |
| (c) Stomach | (d) Pancreas |

Q18. The neurotransmitter released at the neuromuscular junction is

- | | |
|---------------|-------------------|
| (a) Dopamine | (b) Acetylcholine |
| (c) Serotonin | (d) GABA |

Q19. The master gland of the endocrine system is the

- | | |
|-------------|---------------|
| (a) Thyroid | (b) Pituitary |
| (c) Adrenal | (d) Pancreas |

Q20. Normal blood pressure of a healthy adult is about

- | | |
|------------------|------------------|
| (a) 120/80 mmHg | (b) 90/60 mmHg |
| (c) 140/100 mmHg | (d) 160/110 mmHg |

SECTION – B | Long Answer / Essay Questions

3 × 10 = 30 Marks

Answer any **THREE** of the following. Each question carries 10 marks.

Q21. Define cell. Describe the structure and functions of the various cell organelles with a labelled diagram. [10]

Q22. Describe the structure of the heart with a labelled diagram and explain the process of cardiac cycle and its regulation. [10]

Q23. Explain the composition and functions of blood. Describe the process of blood coagulation and the ABO blood grouping system. [10]

Q24. Describe the structure of a nephron with a labelled diagram and explain the process of urine formation. [10]

Q25. Explain the structure and functions of the respiratory system and describe the mechanism of respiration (inspiration and expiration). [10]

SECTION – C | Short Notes

5 × 6 = 30 Marks

Answer any **FIVE** of the following. Each question carries 6 marks.

Q26. Types of tissues in the human body [6]

Q27. Functions of blood [6]

Q28. Structure and functions of the neuron [6]

Q29. ABO and Rh blood grouping [6]

Q30. Structure of a long bone [6]

Q31. Functions of the liver [6]

Q32. Anatomy of the skin [6]

— END OF QUESTION PAPER —

BOARD OF DIPLOMA IN PHARMACY EXAMINATIONS

D.Pharm — FIRST YEAR | ER-2020 Regulation

MODEL QUESTION PAPER — SET 2

HUMAN ANATOMY AND PHYSIOLOGY (ER20-14T)

Time: 3 Hours
Reg. No. : _____
Max. Marks: 80

General Instructions: All sections are compulsory. Figures to the right indicate full marks. Draw neat, labelled diagrams / flowcharts wherever necessary. Answers to Section A (Q. 1–20) must be written together as a single unit.

SECTION – A | Multiple Choice Questions

20 × 1 = 20 Marks

Answer ALL questions. Each question carries 1 mark.

Q1. Which cell organelle is the site of protein synthesis?

- | | |
|--------------|---------------------|
| (a) Ribosome | (b) Mitochondria |
| (c) Lysosome | (d) Golgi apparatus |

Q2. The 'suicidal bags' of the cell are

- | | |
|------------------|---------------|
| (a) Ribosomes | (b) Lysosomes |
| (c) Mitochondria | (d) Vacuoles |

Q3. The longest bone in the human body is the

- | | |
|-------------|------------|
| (a) Tibia | (b) Femur |
| (c) Humerus | (d) Radius |

Q4. A movable joint is also called a

- | | |
|-------------------------|--------------------|
| (a) Fibrous joint | (b) Synovial joint |
| (c) Cartilaginous joint | (d) Suture |

Q5. The muscle attached to bones responsible for movement is

- | | |
|--------------|-----------------|
| (a) Cardiac | (b) Smooth |
| (c) Skeletal | (d) Involuntary |

Q6. Haemoglobin is present in

- | | |
|---------------|------------|
| (a) WBC | (b) RBC |
| (c) Platelets | (d) Plasma |

Q7. The lifespan of a red blood cell is about

- | | |
|--------------|------------|
| (a) 24 hours | (b) 7 days |
| (c) 120 days | (d) 1 year |

Q8. Clotting of blood requires the mineral

- | | |
|---------------|-------------|
| (a) Sodium | (b) Calcium |
| (c) Potassium | (d) Iron |

Q9. Which valve is present between the left atrium and left ventricle?

- | | |
|---------------|-----------------------|
| (a) Tricuspid | (b) Bicuspid (mitral) |
| (c) Pulmonary | (d) Aortic |

Q10. Blood vessels that carry blood away from the heart are

- | | |
|-----------------|--------------|
| (a) Veins | (b) Arteries |
| (c) Capillaries | (d) Venules |

Q11. The volume of blood pumped by the heart per minute is the

- | | |
|-----------------------|--------------------|
| (a) Stroke volume | (b) Cardiac output |
| (c) Ejection fraction | (d) Pulse pressure |

Q12. The largest artery in the body is the

- | | |
|----------------------|------------------|
| (a) Pulmonary artery | (b) Aorta |
| (c) Carotid | (d) Renal artery |

Q13. Which part of the nephron reabsorbs most water?

- | | |
|----------------------|--------------------------|
| (a) Glomerulus | (b) Proximal tubule |
| (c) Bowman's capsule | (d) Collecting duct only |

Q14. The hormone that lowers blood glucose is

- | | |
|---------------|----------------|
| (a) Glucagon | (b) Insulin |
| (c) Thyroxine | (d) Adrenaline |

Q15. The autonomic nervous system is divided into sympathetic and

- | | |
|-------------|---------------------|
| (a) Somatic | (b) Parasympathetic |
| (c) Central | (d) Peripheral |

Q16. Which enzyme in saliva begins starch digestion?

- | | |
|-------------|--------------------------------|
| (a) Pepsin | (b) Salivary amylase (ptyalin) |
| (c) Trypsin | (d) Lipase |

Q17. The absorption of digested food mainly occurs in the

- | | |
|---------------------|---------------------|
| (a) Stomach | (b) Small intestine |
| (c) Large intestine | (d) Oesophagus |

Q18. The photoreceptor cells of the retina are rods and

- | | |
|-------------|-----------|
| (a) Cones | (b) Cilia |
| (c) Neurons | (d) Villi |

Q19. Thyroxine is secreted by the

- | | |
|-------------------|-------------------|
| (a) Adrenal gland | (b) Thyroid gland |
| (c) Pituitary | (d) Ovary |

Q20. The functional contractile unit of a muscle is the

- | | |
|---------------|---------------|
| (a) Myofibril | (b) Sarcomere |
| (c) Actin | (d) Neuron |

SECTION – B | Long Answer / Essay Questions

3 × 10 = 30 Marks

Answer any **THREE** of the following. Each question carries 10 marks.

- Q21.** Describe the skeletal system. Classify bones with examples and explain the structure and types of joints. [10]
- Q22.** Explain the digestive system with a labelled diagram and describe the process of digestion and absorption of carbohydrates, proteins and fats. [10]
- Q23.** Describe the structure of the eye with a labelled diagram and explain the mechanism of vision. [10]
- Q24.** Explain the structure and functions of the nervous system (CNS and PNS) and describe a reflex arc. [10]
- Q25.** Describe the endocrine glands, their hormones and functions with special reference to the pituitary, thyroid and pancreas. [10]

SECTION – C | Short Notes

5 × 6 = 30 Marks

Answer any **FIVE** of the following. Each question carries 6 marks.

- Q26.** Types of joints [6]
- Q27.** Structure of skeletal muscle [6]
- Q28.** Cardiac output and blood pressure [6]
- Q29.** Hormones of the pituitary gland [6]
- Q30.** Reflex arc [6]
- Q31.** Structure of the ear [6]
- Q32.** Functions of the large intestine [6]

— END OF QUESTION PAPER —

BOARD OF DIPLOMA IN PHARMACY EXAMINATIONS

D.Pharm — FIRST YEAR | ER-2020 Regulation

MODEL QUESTION PAPER — SET 3

HUMAN ANATOMY AND PHYSIOLOGY (ER20-14T)

Time: 3 Hours
Reg. No. : _____
Max. Marks: 80

***General Instructions:** All sections are compulsory. Figures to the right indicate full marks. Draw neat, labelled diagrams / flowcharts wherever necessary. Answers to Section A (Q. 1–20) must be written together as a single unit.*

SECTION – A | Multiple Choice Questions

20 × 1 = 20 Marks

*Answer **ALL** questions. Each question carries 1 mark.*

Q1. The cell membrane is chiefly composed of

- | | |
|------------------------|-------------------------|
| (a) Proteins only | (b) Lipids and proteins |
| (c) Carbohydrates only | (d) Water |

Q2. Which tissue connects and supports other tissues?

- | | |
|----------------|----------------|
| (a) Epithelial | (b) Connective |
| (c) Muscular | (d) Nervous |

Q3. The axial skeleton includes the

- | | |
|------------|--------------------------------|
| (a) Limbs | (b) Skull and vertebral column |
| (c) Pelvis | (d) Shoulder girdle |

Q4. Voluntary muscles are also known as

- | | |
|---------------------|-------------------------|
| (a) Smooth muscles | (b) Skeletal muscles |
| (c) Cardiac muscles | (d) Involuntary muscles |

Q5. The white blood cells are responsible for

- | | |
|----------------------|------------------------|
| (a) Oxygen transport | (b) Defence/immunity |
| (c) Clotting | (d) Nutrient transport |

Q6. Platelets are also called

- | | |
|------------------|------------------|
| (a) Erythrocytes | (b) Thrombocytes |
| (c) Leucocytes | (d) Phagocytes |

Q7. The rhythmic contraction and relaxation of the heart is the

- | | |
|-------------------|------------------|
| (a) Cardiac cycle | (b) Systole only |
| (c) Diastole only | (d) Pulse |

Q8. Deoxygenated blood enters the heart through the

- | | |
|--------------------|---------------------|
| (a) Aorta | (b) Vena cava |
| (c) Pulmonary vein | (d) Coronary artery |

Q9. The exchange of gases between blood and tissues is called

- | | |
|--------------------------|--------------------------|
| (a) External respiration | (b) Internal respiration |
| (c) Ventilation | (d) Diffusion only |

Q10. The vital capacity of the lungs is the

- | | |
|---------------------|---|
| (a) Tidal volume | (b) Maximum air exhaled after deepest inspiration |
| (c) Residual volume | (d) Dead space |

Q11. The glomerular filtrate is formed in the

- | | |
|---------------------|----------------------|
| (a) Loop of Henle | (b) Bowman's capsule |
| (c) Collecting duct | (d) Ureter |

Q12. Adrenaline is secreted by the

- | | |
|---------------------|-------------|
| (a) Adrenal medulla | (b) Thyroid |
| (c) Pancreas | (d) Ovary |

Q13. The largest part of the brain is the

- | | |
|----------------|--------------|
| (a) Cerebellum | (b) Cerebrum |
| (c) Medulla | (d) Pons |

Q14. Peristalsis refers to

- | | |
|--|--------------------------|
| (a) Muscular waves moving food along the gut | (b) Digestion in stomach |
| (c) Absorption | (d) Filtration |

Q15. The taste buds are located mainly on the

- | | |
|----------|------------|
| (a) Nose | (b) Tongue |
| (c) Ear | (d) Skin |

Q16. Which hormone regulates calcium levels in blood?

- | | |
|----------------|-------------------------|
| (a) Insulin | (b) Parathyroid hormone |
| (c) Adrenaline | (d) Thyroxine |

Q17. The functional junction between two neurons is the

- | | |
|----------|--------------|
| (a) Node | (b) Synapse |
| (c) Axon | (d) Dendrite |

Q18. Which blood group is called the universal recipient?

- | | |
|-------|--------|
| (a) O | (b) A |
| (c) B | (d) AB |

Q19. Bile helps in the digestion of

- | | |
|-------------------|--------------|
| (a) Carbohydrates | (b) Proteins |
| (c) Fats | (d) Vitamins |

Q20. The middle muscular layer of the heart is the

- | | |
|-----------------|----------------|
| (a) Endocardium | (b) Myocardium |
| (c) Pericardium | (d) Epicardium |

SECTION – B | Long Answer / Essay Questions

3 × 10 = 30 Marks

Answer any **THREE** of the following. Each question carries 10 marks.

Q21. Explain the composition of blood in detail. Describe erythropoiesis and the functions of red blood cells, white blood cells and platelets. [10]

Q22. Describe the mechanism of blood coagulation. Explain the intrinsic and extrinsic pathways and the role of clotting factors. [10]

Q23. Explain the structure and functioning of the urinary system and describe the physiology of urine formation (filtration, reabsorption and secretion). [10]

Q24. Describe the autonomic nervous system. Compare the actions of sympathetic and parasympathetic divisions on various organs. [10]

Q25. Explain the structure and functions of the respiratory system, respiratory volumes and the transport of oxygen and carbon dioxide in blood. [10]

SECTION – C | Short Notes

5 × 6 = 30 Marks

Answer any **FIVE** of the following. Each question carries 6 marks.

Q26. Cell membrane and its functions [6]

Q27. Types of white blood cells [6]

Q28. Cardiac cycle [6]

Q29. Nephron and its parts [6]

Q30. Sympathetic vs parasympathetic actions [6]

Q31. Hormones of the adrenal gland [6]

Q32. Mechanism of vision [6]

— END OF QUESTION PAPER —

BOARD OF DIPLOMA IN PHARMACY EXAMINATIONS

D.Pharm — FIRST YEAR | ER-2020 Regulation

MODEL QUESTION PAPER — SET 4

HUMAN ANATOMY AND PHYSIOLOGY (ER20-14T)

Time: 3 Hours
Reg. No. : _____
Max. Marks: 80

***General Instructions:** All sections are compulsory. Figures to the right indicate full marks. Draw neat, labelled diagrams / flowcharts wherever necessary. Answers to Section A (Q. 1–20) must be written together as a single unit.*

SECTION – A | Multiple Choice Questions

20 × 1 = 20 Marks

*Answer **ALL** questions. Each question carries 1 mark.*

Q1. Golgi apparatus is mainly involved in

- | | |
|-----------------------|-----------------------------|
| (a) Respiration | (b) Packaging and secretion |
| (c) Digestion of food | (d) DNA storage |

Q2. Cartilage is an example of which tissue?

- | | |
|----------------|----------------|
| (a) Epithelial | (b) Connective |
| (c) Muscular | (d) Nervous |

Q3. The appendicular skeleton includes the

- | | |
|-----------------------|----------------------|
| (a) Skull | (b) Vertebral column |
| (c) Limbs and girdles | (d) Ribs |

Q4. Cardiac muscle is

- | | |
|--------------------------------|------------------------------|
| (a) Voluntary and striated | (b) Involuntary and striated |
| (c) Voluntary and non-striated | (d) Involuntary and smooth |

Q5. The process of formation of blood cells is called

- | | |
|-----------------|--------------------|
| (a) Haemostasis | (b) Haematopoiesis |
| (c) Haemolysis | (d) Coagulation |

Q6. The normal RBC count in an adult male is about

- | | |
|-------------------------|--------------------------|
| (a) 1 million/ μ L | (b) 5 million/ μ L |
| (c) 10 million/ μ L | (d) 0.5 million/ μ L |

Q7. The 'lub-dub' sounds of the heart are produced by

- | | |
|-----------------------------|-----------------------------|
| (a) Blood flow | (b) Closure of heart valves |
| (c) Muscle contraction only | (d) Nerve impulses |

Q8. The instrument used to measure blood pressure is a

- | | |
|-----------------|----------------------|
| (a) Stethoscope | (b) Sphygmomanometer |
| (c) Thermometer | (d) ECG |

Q9. Which respiratory structure prevents food entering the trachea?

- | | |
|----------------|--------------|
| (a) Epiglottis | (b) Larynx |
| (c) Pharynx | (d) Bronchus |

Q10. The number of pairs of ribs in humans is

- | | |
|--------|--------|
| (a) 10 | (b) 11 |
| (c) 12 | (d) 14 |

Q11. The counter-current mechanism operates in the

- | | |
|----------------|-------------------|
| (a) Glomerulus | (b) Loop of Henle |
| (c) Ureter | (d) Bladder |

Q12. Which gland is located above each kidney?

- | | |
|---------------|--------------|
| (a) Thyroid | (b) Adrenal |
| (c) Pituitary | (d) Pancreas |

- Q13.** The spinal cord is protected by the
 (a) Skull (b) Vertebral column
 (c) Ribs (d) Sternum
- Q14.** The enzyme pepsin is active in the
 (a) Mouth (b) Stomach
 (c) Small intestine (d) Colon
- Q15.** Which sense organ is responsible for hearing and balance?
 (a) Eye (b) Ear
 (c) Nose (d) Skin
- Q16.** The hormone oxytocin is released by the
 (a) Anterior pituitary (b) Posterior pituitary
 (c) Thyroid (d) Adrenal
- Q17.** A single nerve cell is called a
 (a) Nephron (b) Neuron
 (c) Nephridium (d) Neuroglia
- Q18.** Which factor is essential for RBC maturation?
 (a) Vitamin B12 and folic acid (b) Vitamin C only
 (c) Vitamin D only (d) Calcium only
- Q19.** The largest lymphatic organ in the body is the
 (a) Liver (b) Spleen
 (c) Thymus (d) Tonsil
- Q20.** Diastole refers to the phase of the heart during which it
 (a) Contracts (b) Relaxes and fills
 (c) Pumps blood out (d) Beats fastest

SECTION – B | Long Answer / Essay Questions

3 × 10 = 30 Marks

Answer any **THREE** of the following. Each question carries 10 marks.

- Q21.** Describe the structure of the human heart and explain the conducting system of the heart and the origin/spread of the cardiac impulse. [10]
- Q22.** Explain the muscular system. Describe the types of muscles, structure of skeletal muscle and the physiology of muscle contraction. [10]
- Q23.** Describe the digestive system and the role of digestive enzymes and accessory glands (liver, pancreas, salivary glands) in digestion. [10]
- Q24.** Explain the endocrine system in detail. Describe the location, hormones and functions of the thyroid, adrenal and pancreas. [10]
- Q25.** Describe the structure and functions of the skin and explain the physiology of temperature regulation. [10]

SECTION – C | Short Notes

5 × 6 = 30 Marks

Answer any **FIVE** of the following. Each question carries 6 marks.

- Q26.** Structure and functions of mitochondria [6]
- Q27.** Classification of joints with examples [6]
- Q28.** Physiology of muscle contraction [6]
- Q29.** Blood pressure and its regulation [6]
- Q30.** Structure of the nephron [6]
- Q31.** Functions of the cerebellum [6]
- Q32.** Hormones of the pancreas [6]

— END OF QUESTION PAPER —

BOARD OF DIPLOMA IN PHARMACY EXAMINATIONS

D.Pharm — FIRST YEAR | ER-2020 Regulation

MODEL QUESTION PAPER — SET 5

HUMAN ANATOMY AND PHYSIOLOGY (ER20-14T)

Time: 3 Hours
Reg. No. : _____
Max. Marks: 80

***General Instructions:** All sections are compulsory. Figures to the right indicate full marks. Draw neat, labelled diagrams / flowcharts wherever necessary. Answers to Section A (Q. 1–20) must be written together as a single unit.*

SECTION – A | Multiple Choice Questions

20 × 1 = 20 Marks

Answer ALL questions. Each question carries 1 mark.

Q1. The genetic material of the cell is stored in the

- | | |
|--------------|------------------|
| (a) Nucleus | (b) Mitochondria |
| (c) Ribosome | (d) Golgi body |

Q2. Which tissue is specialised for conducting impulses?

- | | |
|----------------|----------------|
| (a) Epithelial | (b) Connective |
| (c) Muscular | (d) Nervous |

Q3. The joint at the shoulder is an example of a

- | | |
|-----------------|---------------------------|
| (a) Hinge joint | (b) Ball and socket joint |
| (c) Pivot joint | (d) Gliding joint |

Q4. Involuntary muscles present in internal organs are

- | | |
|--------------|-------------------|
| (a) Skeletal | (b) Cardiac |
| (c) Smooth | (d) Striated only |

Q5. Anaemia results from a deficiency of

- | | |
|---------------|---------------------|
| (a) Platelets | (b) Haemoglobin/RBC |
| (c) WBC | (d) Plasma proteins |

Q6. The process of stopping bleeding is called

- | | |
|--------------------|-----------------|
| (a) Haematopoiesis | (b) Haemostasis |
| (c) Haemolysis | (d) Filtration |

Q7. The volume of blood ejected per heartbeat is the

- | | |
|--------------------|-------------------|
| (a) Cardiac output | (b) Stroke volume |
| (c) Vital capacity | (d) Tidal volume |

Q8. Blood returns to the heart from the lungs through the

- | | |
|----------------------|--------------------|
| (a) Pulmonary artery | (b) Pulmonary vein |
| (c) Aorta | (d) Vena cava |

Q9. The amount of air breathed in or out during normal breathing is the

- | | |
|---------------------|------------------|
| (a) Vital capacity | (b) Tidal volume |
| (c) Residual volume | (d) Dead space |

Q10. The number of cervical vertebrae in humans is

- | | |
|--------|--------|
| (a) 5 | (b) 7 |
| (c) 12 | (d) 33 |

Q11. The hormone antidiuretic hormone (ADH) acts on the

- | | |
|-----------|--------------------|
| (a) Liver | (b) Kidney tubules |
| (c) Heart | (d) Lungs |

Q12. Which part of the brain controls respiration and heartbeat?

- | | |
|-----------------------|----------------|
| (a) Cerebrum | (b) Cerebellum |
| (c) Medulla oblongata | (d) Thalamus |

Q13. Digestion of proteins begins in the

- | | |
|---------------------|-------------|
| (a) Mouth | (b) Stomach |
| (c) Small intestine | (d) Colon |

Q14. The blind spot in the eye is where the

- | | |
|---------------------|-----------------------------------|
| (a) Cones are dense | (b) Optic nerve leaves the retina |
| (c) Lens is located | (d) Iris is located |

Q15. Which mineral is required for thyroid hormone synthesis?

- | | |
|-------------|------------|
| (a) Iron | (b) Iodine |
| (c) Calcium | (d) Sodium |

Q16. The gap between two neurons across which impulses pass is the

- | | |
|---------------------|--------------|
| (a) Axon | (b) Synapse |
| (c) Node of Ranvier | (d) Dendrite |

Q17. The Rh factor is a type of

- | | |
|-------------|--------------------|
| (a) Enzyme | (b) Antigen on RBC |
| (c) Hormone | (d) Plasma protein |

Q18. Emulsification of fats is carried out by

- | | |
|-------------|----------------|
| (a) Pepsin | (b) Bile salts |
| (c) Amylase | (d) HCl |

Q19. The outer protective covering of the heart is the

- | | |
|-----------------|---------------------|
| (a) Endocardium | (b) Myocardium |
| (c) Pericardium | (d) Epicardium only |

Q20. Growth hormone is secreted by the

- | | |
|-------------|------------------------|
| (a) Thyroid | (b) Anterior pituitary |
| (c) Adrenal | (d) Pancreas |

SECTION – B | Long Answer / Essay Questions

3 × 10 = 30 Marks

Answer any **THREE** of the following. Each question carries 10 marks.

Q21. Define tissue. Classify tissues of the human body and describe the structure, location and functions of each type with examples. [10]

Q22. Explain the cardiovascular system. Describe the systemic and pulmonary circulation and the structure and functions of blood vessels. [10]

Q23. Describe the physiology of respiration including external and internal respiration, respiratory volumes and transport of gases. [10]

Q24. Explain the nervous system. Describe the structure of a neuron, classification of neurons, and the transmission of a nerve impulse. [10]

Q25. Describe the reproductive system (male and female) and explain the physiology of the menstrual cycle. [10]

SECTION – C | Short Notes

5 × 6 = 30 Marks

Answer any **FIVE** of the following. Each question carries 6 marks.

Q26. Structure and functions of the cell nucleus [6]

Q27. Erythropoiesis [6]

Q28. Conducting system of the heart [6]

Q29. Vital capacity and respiratory volumes [6]

Q30. Functions of the kidney [6]

Q31. Neuron and nerve impulse transmission [6]

Q32. Hormones of the thyroid gland [6]

— END OF QUESTION PAPER —