

Name:

Enrolment No:



UPES

End Semester Examination, December 2024

Course: Human Anatomy and Physiology

Semester : 1

Program: B.Sc. (Clinical Research)

Duration : 3 Hours

Course Code: HSCC1025

Max. Marks: 100

Instructions: Read questions carefully

S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q 1	Following statement best describes the primary difference between anatomy and physiology. A) Anatomy studies the structure of the body, while physiology studies the function of the body parts. B) Anatomy studies the chemical processes in the body, while physiology focuses on the body's structure. C) Anatomy deals with the human body only, while physiology is concerned with animals. D) Anatomy focuses on the body's functions, while physiology deals with the cells' structure.	1.5	CO1
Q 2	Following is NOT a function of the integumentary system. A) Protection from physical injury B) Regulation of body temperature C) Production of insulin D) Synthesis of Vitamin D	1.5	CO1
Q 3	Following is a characteristic of negative feedback in maintaining homeostasis. A) It enhances or amplifies the original stimulus B) It results in a rapid increase in a physiological parameter C) It works to return a variable to its set point or normal range D) It initiates a positive response to an environmental change	1.5	CO1
Q 4	Lymph is primarily composed of: A) Red blood cells and plasma proteins B) White blood cells and plasma C) Platelets and fibrinogen D) Interstitial fluid and white blood cells	1.5	CO1
Q 5	The ABO blood group system is determined by the presence of which of the following on the surface of red blood cells? A) Antibodies B) Rh factor C) Antigens D) Platelets	1.5	CO2
Q 6	Below is NOT the component of Haemoglobin.	1.5	CO2

	<p>A) α globin chain B) Fe^{2+} C) β globin chain D) Fe^{3+}</p>		
Q 7	<p>Following statements is true about the appendicular skeleton. A) It includes the skull and vertebral column. B) It includes the shoulder girdle, arms, and pelvic girdle. C) It consists only of the bones in the arms and legs. D) It includes the rib cage and vertebral column.</p>	1.5	CO2
Q 8	<p>Hemopoiesis refers to: A) The breakdown of old red blood cells B) The formation of blood cells C) The production of hormones by blood cells D) The regulation of blood pressure</p>	1.5	CO2
Q 9	<p>Anemia caused by deficiency in vitamin B12 or folate is... A) iron-deficiency anemia. B) pernicious anemia. C) sickle cell anemia. D) aplastic anemia.</p>	1.5	CO3
Q 10	<p>Which of the following best describes the role of neuroglia in the nervous system? A) Transmitting electrical impulses B) Providing structural and metabolic support for neurons C) Forming the synapse D) Generating action potentials</p>	1.5	CO3
Q 11	<p>The refractory period refers to: A) The time during which a neuron can generate another action potential B) The time when the neuron is unable to generate another action potential C) The release of neurotransmitters into the synaptic cleft D) The time when neurotransmitters bind to receptors</p>	1.5	CO3
Q 12	<p>The meninges are responsible for: A) Producing cerebrospinal fluid B) Protecting the brain and spinal cord C) Transmitting action potentials between the brain and body D) Generating motor impulses for movement</p>	1.5	CO3
Q 13	<p>The conduction system of the heart includes all of the following structures <u>EXCEPT</u>: A) Sinoatrial (SA) node B) Atrioventricular (AV) node C) Bundle of His D) Pulmonary artery</p>	1.5	CO4
Q 14	<p>Blood vessels which carry oxygenated blood from the heart to the body are... A) veins. B) pulmonary arteries. C) aorta and arteries. D) capillaries.</p>	1.5	CO4
Q 15	<p>Following is characteristic of an electrocardiogram (ECG) of a person with atrial fibrillation.</p>	1.5	CO4

	A) Regular, rapid P-waves B) Irregularly irregular rhythm with no distinct P-waves C) Elevated ST segment D) Prolonged QRS complex		
Q 16	Cells responsible for the secretion of hydrochloric acid (HCl) in stomach are... A) Parietal cells B) Chief cells C) G cells D) Mucous cells	1.5	CO4
Q 17	Which of the following is located in the posterior mediastinum? A) Heart B) Trachea C) Esophagus D) Thymus	1.5	CO5
Q 18	The renin-angiotensin-aldosterone system (RAAS) helps regulate: A) Blood oxygen levels B) Blood pressure and fluid balance C) Blood glucose levels D) Electrolyte levels	1.5	CO5
Q 19	Which layer is a part of both pericardium and a part of heart wall?	1.5	CO5
Q 20	Name all organs which comprise the mediastinum.	1.5	CO5
Section B (4Qx5M=20 Marks)			
Q 1	List components of a typical eukaryotic cell. Include the structure and function of the mitochondria and cell membrane.	5	CO1
Q 2	List and briefly explain the main functions of the skin.	5	CO2
Q 3	Explain any two artificial respiration techniques.	5	CO3
Q 4	Discuss the anatomy of lymph capillaries.	5	CO4
Section C (2Qx15M=30 Marks)			
Q 1	Discuss how the structure of the heart and blood vessels ensure the efficient flow of blood through the systemic and pulmonary circuits mentioning the anatomy of heart and blood vessels?	15	CO4
Q 2	A) Explain the generation of action potential in response to a stimulus with help of a graph. B) Suppose that the plasma membrane of a neuron has more Na ⁺ leakage channels than K ⁺ leakage channels. What effect would this have on resting membrane potential?	10+5	CO5
Section D (2Qx10M=20 Marks)			
Q 1	Describe the process of blood coagulation, including the role of platelets, clotting factors, and fibrin.	10	CO2
Q 2	Analyze the structural components of a neuron and explain the role of each component in the transmission of nerve impulses.	10	CO3