

Anatomy & Physiology, 11th or 12th ed. (can be International 12th ed.)
by Ross and Wilson

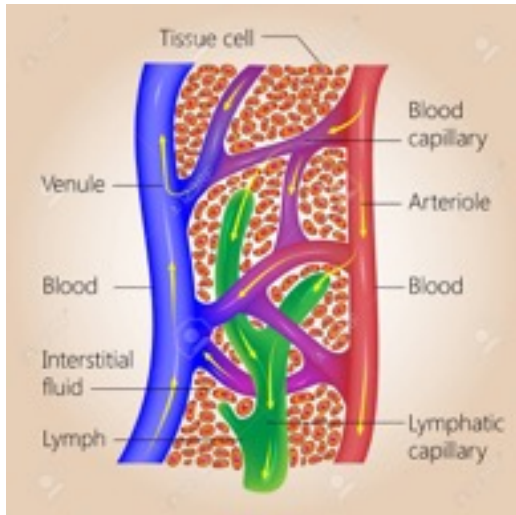
CLASS: G210-A
Part One Test Questions

Part one of your test covers chapters 1, 2 and 3

Chapter 1

1. _____ is the study of the structure of the body and the physical relationships between its constituent parts.
2. _____ is the study of how the body systems work, and the ways in which their integrated activities maintain life and health of the individual.
3. _____ is the study of abnormalities and pathophysiology considers how they affect body functions, often causing illness.
4. Cells are bathed in fluid called interstitial or tissue fluid. They absorb oxygen and _____ from the surrounding interstitial fluid, which in turn has absorbed these substances from the circulating blood.
5. The composition of the internal environment is tightly controlled, and this fairly constant state is called _____.
6. In adults the body contains 5 to 6 liters of blood. It consists of two parts - a fluid called _____ and blood cells suspended in the plasma.
7. What are the three distinct groups of blood cells?
A. _____ B. _____ C. _____
8. Arteries (carry blood away from heart), veins (return blood to the heart), and capillaries (link the arteries and veins) are the three main types of _____.

9. Lymph is a tissue fluid that also contains material drained from the tissue _____, including plasma proteins and sometimes, bacteria or cell debris.



Note: Every tissue/organ/system is made up of billions of cells. Every cell in the body is surrounded by fluid (interstitial fluid). Where you have a cell you will find a blood supply (capillaries deliver oxygen, nutrients...) and lymph vessels (removes unused materials delivered by the capillaries and removes waste products that the cell has exported into the interstitial fluid).

Every individual cell (kidney cells, skin cells, heart cells...) needs nourishment and has waste products.

10. The central nervous system consists of the _____ and the spinal cord.
11. The _____ nervous system is a network of nerve fibers which are either: sensory (afferent) or motor (efferent) nervous.
12. The endocrine system consists of a number of discrete _____ situated in different parts of the body. They synthesize and secrete chemical messengers called _____ that circulate round the body in the blood.
13. The _____ needed by the body is obtained by eating protein-containing foods, mainly meat and fish.
14. Nutrients include _____, carbohydrates, proteins, fats, vitamins and mineral salts.
15. The function of the _____ system is to break down, or digest, food so that it can be absorbed into the circulation and used by body cells.
16. Metabolism is the sum total of the chemical activity in the body. It consists of two groups of processes. If the chemical activity results in building, synthesizing substances it is called _____. When the chemical reactions result in breaking down substances it is called catabolism.

17. Carbon dioxide is a waste product of cellular metabolism. The main route of carbon dioxide excretion is through the _____.
18. Diseases are usually caused by one or more of a limited number of mechanisms that may include: Genetics, Infections, _____, Ionizing Radiation, Physical Trauma, Degeneration. [Note: lack of, or insufficient nutrients, should be listed!]

Chapter 2

19. Compounds containing _____ and hydrogen are classified as organic and all others are inorganic. Sodium chloride (two atoms bonded together would be inorganic).
20. pH is the measuring system used to express the concentration of _____ ions (H⁺) in a fluid, which is an indicator of its acidity or alkalinity.
21. A pH reading below 7 indicates an _____ solution, while readings above 7 indicate a basic (alkaline) solutions.
22. With the notable exception of gastric juice, most body fluids are close to _____, because they contain buffers.
23. The low pH of the stomach fluids destroys _____ and toxins (some) swallowed in food or drink.
24. Saliva has a pH of between 5.4 and 7.5, which is the optimum value (range) for the action of salivary amylase, the enzyme present in saliva which initiates the digestion of _____.
25. The _____ are important regulators of blood pH because they excrete carbon dioxide (CO₂). Carbon dioxide increases H⁺ in the body fluids because it combines with water (H₂O) to form carbonic acid, which then dissociates into a bicarbonate ion and a hydrogen ion.
26. The kidneys regulate blood pH by adjusting the excretion of the hydrogen and bicarbonate ions as _____.
27. Carbohydrates (sugars and starches) are composed of carbon, oxygen, and hydrogen (organic compounds). Glucose is our cell fuel molecule. To ensure a constant supply of glucose for cellular _____, blood glucose levels are tightly controlled.

28. Amino acids always contain carbon, hydrogen, oxygen and _____, and many in addition carry sulphur.
29. Proteins are made from amino acids joined together, and are the main family of molecules from which the human body is built. Many important groups of biologically active substances are proteins. Examples include carrier molecules like hemoglobin, _____, many hormones (including insulin), and antibodies.
30. Lipids are a diverse group of substances whose common property is an inability to mix with water (hydrophobic). The most important groups are phospholipids, fat-soluble vitamins, and fats (_____), stored in adipose tissue.
31. Prostaglandins are chemicals derived from _____ and are involved in inflammation and other processes.
32. _____ is a steroid that stabilizes cell membranes and is the precursor of the several hormones. It is also used to make bile salts for digestion.
33. Nucleic acids are the largest molecules in the body. They include deoxyribonucleic acid (_____) and ribonucleic acid (RNA).
34. Energy generated from _____ breakdown fuels muscle contractions, motility of spermatozoa, anabolic reactions and the transport of materials across cell membranes.
35. Some enzymes require the presence of a _____, an ion or small molecule that allows the enzyme to bind its substrate(s). Some vitamins act as cofactors.
36. When an enzyme catalyses (causes or speeds up the reaction) the combination of two or more substrates into a larger product, it is called an _____ reaction. The opposite of building is breakdown - Catabolic reactions involve the breakdown of the substrate into smaller products, as occurs during the digestion of foods.
37. Diffusion: Oxygen diffuses freely through the walls of the alveoli (airsacs in the the lungs), where oxygen concentrations are high, into the _____, where oxygen concentrations are low.
38. Osmosis: When molecules are too large to pass through the semipermeable membranes it creates _____ pressure. This pressure "pulls" water from the dilute solution into the concentrated solution. (The molecules didn't move but the fluid/water did move so that each side has the same dilution).

39. The extracellular fluid consists mainly of _____, plasma, lymph, cerebrospinal fluid and fluid in the interstitial spaces of the body. The interstitial (intercellular) fluid bathes all the cells of the body. [Extracellular - fluid outside of the cell]
40. Intracellular (inside the cell) fluid is largely controlled by the cell itself, because there are selective uptake and discharge mechanisms present in the _____. [The cell membrane, is like having many doors coming into a house with a security guard standing at each door.]

Chapter 3

41. Cells are grouped together to form _____, each of which has a specialized function. Different tissues are grouped together to form _____. Organs are grouped together to form _____.
42. The nucleus (inside the cell) contain's the body's _____ material (in the form of DNA), which directs all the metabolic activities of the cell.
43. _____ are involved in aerobic respiration which results in the formation of ATP (energy). The most active cell types have the greatest number of these power houses.
44. _____ synthesize (build) proteins from amino acids , using RNA as a template (instructions).
45. There are two types of endoplasmic reticulum: smooth and rough. The smooth ER synthesizes lipids (fats) and steroid _____, and is also associated with the detoxification of some drugs. The rough ER is associated with the synthesis of proteins.
46. Lysosomes contain a variety of _____ involved in breaking down fragments of organelles and large molecules inside the cell into smaller particles that are either recycled or extruded from the cell as waste material.
- Note:** Cells are always undergoing maintenance and repair! The waste material is shuttled out of the cell and into the interstitial fluid that surrounds each cell. From the fluid around the cell the waste enters the lymphatic vessels and is shuttled to the nodes and eventually to the blood and liver.
47. At the end of their natural lifespan, aging cells are programmed to self destruct and their components are removed by phagocytosis; a process known as _____ (programmed cell death). [Phagocytosis, process by which certain living cells called phagocytes ingest or engulf other cells or particles.]

48. The structure of the plasma membrane provides it with the property of selective permeability, meaning that not all substances can cross it. Those that can, do so in different ways depending on their size and characteristics. The two transport systems are referred to as Passive Transport and _____ Transport.
49. All cells have a sodium-potassium pump which indirectly supports other transport mechanisms such as glucose uptake. This active transport mechanism maintains the _____ concentrations of sodium (Na^+) and potassium (K^+) ions on either side of the plasma membrane. It may use up to 30% of cellular ATP (energy) requirements.
50. _____ levels are much higher inside the cell than outside the cell - it is a principal intracellular cation (a positively charged atom - K^+). Sodium levels are much higher outside the cell than inside and is the principal extracellular cation.

End of Test (Part One: Chapters 1-3)