Test Bank - Chapter 01

Q1: Which anatomic term means toward the midline.

A. anterior
B. posterior
C. medial (Correct)
D. cranial

Rationale: The term medial indicates an anatomic direction toward the midline. Anterior refers to the front of the body. Posterior refers to the back of the body. Cranial refers to the head.

Q2: Which are the smallest living components in our body?

A. Cells (Correct)
B. Organs
C. Electrons
D. Tissue

Rationale: Cells are the smallest living units of structure and function in our body. Tissues are groups of similar cells that work together to perform a specific function. Organs are structures made up of two or more kinds of tissues organized so that they can perform a more complex function than they could alone. Atoms contain protons, neurons, and electrons.

Q3: Which is the largest organelle, responsible for cell reproduction and control of other organelles?

A. Nucleus (Correct)
B. Ribosome
C. Mitochondrion
D. Golgi apparatus

Rationale: The nucleus is the largest organelle within the cell. Ribosomes are tiny structures floating free in the cytoplasm or attached to the rough endoplasmic reticulum (ER). The mitochondria are the powerhouses of the cells. They are bean-shaped with a folded interior membrane. They take food and convert it to a complex energy form, adenosine triphosphate (ATP), for use by the cell. ATP supplies the energy for all activities. The Golgi apparatus usually is located near the nucleus and is the "packaging plant" of the cell. It packages certain carbohydrate and protein compounds into globules.

Q4: When the patient report pain in the bladder area, this indicates a likely disorder in which body cavity?

A. Pelvic (Correct)
B. Mediastinum
C. Dorsal

D. Abdominal

Rationale: A subdivision called the pelvic cavity contains the lower portion of the large intestine (lower sigmoid colon, rectum), urinary bladder, and internal structures of the reproductive system. Mediastinum contains the trachea, heart, blood vessels. Dorsal Body Cavity contains both the brain and spinal cord. Abdominal cavity contains the liver, gallbladder, stomach, spleen, pancreas, small intestine, parts of the large intestine

Q5: The four phases of cell division all occur in which process?

A. diffusion
B. mitosis (Correct)
C. osmosis
D. filtration

Rationale: During mitosis, the cell goes through four phases: prophase, metaphase, anaphase, and telophase. The remaining options are all examples of primary passive transport processes.

Q6: Telophase is which phase of cell reproduction during mitosis?

A. Prophase
B. Metaphase
C. Telophase (Correct)
D. Anaphase

Rationale: During this final (telophase) phase of cell division, the two nuclei appear and the chromosomes disperse. Prophase occurs first when in the nucleus, the chromosomes form two strands called chromatids. In the cytoplasm, the centrioles form a network of spindle fibers. Metaphase occurs next when the nuclear membrane and nucleolus disappear, and the chromosomes are aligned across the center of the cell. The centrioles are at the opposite ends of the cell, and spindle fibers are attached to each chromatid. Anaphase is the third phase when chromosomes are pulled to the opposite ends of the cell, and cell division begins.

Q7: The nurse is aware that which muscle group is both striated and involuntary?

A. Skeletal
B. Glial
C. Cardiac (Correct)
D. Visceral

Rationale: The cardiac muscle is both striated and involuntary. Skeletal muscle is both striated and voluntary. Nervous tissue is composed of two types of cells: neurons and glial cells. Visceral tissue is both smooth and involuntary.

Q8: Which group of several different kinds of tissues are arranged so that together they can perform a more complex function than any tissue alone?

A. Organ (Correct)

B. System
C. Cell
D. Endoplasmic reticulum

Rationale: When several kinds of tissues are united to perform a more complex function than any tissue alone, they are called organs. These organs working together for the same general purpose make up organ systems, which maintain the whole body. Systems perform a more complex function than any one organ can perform alone. Cells are considered the smallest living units of structure and function in the body. Ribosomes attach to rough endoplasmic reticulum (ER) to synthesize proteins; smooth ER synthesizes lipids and certain carbohydrates

Q9: Which traits describe visceral muscles?

A. Smooth and voluntary
B. Smooth and involuntary (Correct)
C. Striated and voluntary
D. Striated and involuntary

Rationale: Visceral (smooth) muscles will not function at will. They act involuntarily.

Q10: How are the thoracic and abdominal cavities separated?

A. By the pleura
B. By the diaphragm (Correct)
C. By the sagittal plane
D. By the peritoneum

Rationale: The diaphragm (a muscle directly beneath the lungs) separates the ventral cavity into the thoracic (chest) and abdominal cavities. The sagittal plane runs lengthwise from the front to the back. A sagittal cut gives a right and a left portion of the body. The peritoneum is the serous membrane that lines the abdominal cavity.

Q11: Which broad section of biology deals with the description of human structure?

A. Hematology
B. Anatomy (Correct)
C. Kinesiology
D. Physiology

Rationale: Anatomy is the study, classification, and description of the structure and organs of the body. Physiology explains the processes and functions of the various structures and how they interrelate. Kinesiology is the study of the mechanics of body movement. Hematology is the study of blood and blood disorders.

Q12: Which term explains the processes and functions of many structures of the body and how they interact with one another?

A. Anatomy

B. Mitosis
C. Filtration
D. Physiology (Correct)

Rationale: Physiology explains the processes and functions of the various structures and how they interrelate with one another. Mitosis refers to type of cell division. Filtration: refers to the movement of water and particles through a membrane by force from either pressure or gravity.

Q13: Which anatomic structure(s) is/are NOT in the thoracic cavity?

A. heart
B. lungs
C. blood vessels
D. transverse colon (Correct)

Rationale: The transverse colon is located in the abdominal/pelvic cavity.

Q14: Which is formed when several organs and parts are grouped together for certain functions?

A. tissues.
B. systems. (Correct)
C. cells.
D. membranes.

Rationale: A system is an organization of varying numbers and kinds of organs arranged so that together they can perform complex functions for the body. A tissue is an organization of many similar cells that act together to perform a common function. The cell is considered the smallest living unit of structure and function in our bodies. A membrane is a thin sheet of tissue or layer of cells acting as a boundary, lining, or partition in an organism.

Q15: The distinct surface proteins of the plasma membrane are essential in determining which of the following?

A. Tissue typing (Correct)
B. Blood count
C. Effectiveness of a drug
D. Sexual maturity

Rationale: The plasma membrane has distinct surface proteins as coming from one individual. This is the basis for the procedure of tissue typing to determine compatibility before an organ transplant. None of the other options are relevant to surface proteins.

Q16: In anatomic terminology, posterior means toward which body part?

A. tail.
B. head.
C. back. (Correct)

D. skin.

Rationale: The posterior is toward the back. Superior is toward the head, or above. Caudal refers to the direction or position towards the tail or posterior end of an organism. Superficial is nearer the surface (skin).

Q17: What does the transverse body plane divide?

A. The front and back (coronal) of the body
B. The body into two equal halves (right and left)
C. The caudal and cranial portions (Correct)
D. A ventral (front) and a dorsal (back)

Rationale: The transverse plane cuts the body horizontally into the sagittal and the frontal planes, dividing the body into caudal and cranial portions. A midsagittal cut gives two equal halves. A sagittal cut gives a right and a left portion of the body. The coronal (frontal) plane divides the body into a ventral (front) section and a dorsal (back) section.

Q18: Caudal is defined as toward which direction?

A. head
B. feet
C. tail (Correct)
D. chest

Rationale: Caudal is a directional word that indicates toward the "tail," the distal portion of the spine. Cranial is toward the head. Inferior is lower, toward the feet. Anterior (or ventral) is forward; the front of the body.

Q19: Which is the term for movement of water from an area of lower solute concentration to an area of higher solute concentration?

A. Absorption
B. Filtration
C. Diffusion
D. Osmosis (Correct)

Rationale: Osmosis is the passage of water from less concentrated solution to more concentrated solution. Absorption occurs when certain specialized epithelial cells take in or soak up material into the body Diffusion is a process in which solid particles in a fluid move from an area of higher concentration to an area of lower concentration, resulting in an even distribution of the particles in the fluid. Filtration is the movement of water and particles through a membrane by force from either pressure or gravity.

Q20: Which type of tissue is composed of cells that contract in response to a message from the brain or spinal cord?

A. Epithelial

B. Connective

C. Membrane

D. Muscle (Correct)

Rationale: Muscle tissue is composed of cells that contract in response to a message from the brain or spinal cord. Epithelial tissue serves several important functions in the body, including protection, absorption, and secretion: Connective tissue "connects," or joins, tissues or structures of the body, and it supports and protects them. A membrane is a thin sheet of tissue or layer of cells acting as a boundary, lining, or partition in an organism.

Q21: Which type of tissue is associated with the storage of fat?

A. Areolar tissue

B. Adipose tissue (Correct)

C. Epithelial tissue

D. Muscle tissue

Rationale: Adipose tissue is associated with the important function of storing fat. Areolar tissue functions as padding and insulation at various points of the body. Epithelial cells are packed closely together and contain no blood vessels. Epithelial tissue covers the outside of the body and some of the internal structures. The four types of epithelial tissue are (1) simple squamous, (2) stratified squamous, (3) simple columnar, and (4) stratified transitional. Muscle tissue is composed of cells that contract in response to a message from the brain or the spinal cord. The three types of muscle cells are (1) skeletal (striated, voluntary), (2) cardiac (striated, involuntary), and (3) visceral (smooth, involuntary).

Q22: Which are the tissues that lubricate and line the body surfaces that open to the outside environment?

A. Mucous membranes (Correct)

B. Serous membranes

C. Pleura

D. Peritoneum

Rationale: Mucous membranes secrete mucus. They line the body surfaces that open to the outside environment. Serous membranes secrete a thin, watery fluid that prevents friction when organs rub against one another. Examples include the lungs (pleura), the intestines (peritoneum), and the heart (pericardium).

Q23: Which is the process by which a cell digests a foreign material by surrounding it?

A. Pinocytosis

B. Phagocytosis (Correct)

C. Absorption

D. Diffusion

Rationale: Phagocytosis is the process that permits a cell to engulf or surround any foreign material and digest it. Pinocytosis involves the movement of fluid and dissolved molecules into a cell by

trapping them in a section of the plasma membrane that pinches off to form an intracellular vesicle; type of endocytosis. Absorption involves certain specialized epithelial cells that can absorb material in the body (e.g., the lining of the small intestine can absorb digested nutrients). Diffusion involves the movement of solute particles through a membrane from an area of high concentration to an area of low concentration (down the concentration gradient)

Q24: Active transport in the movement of ions and other water-soluble particles across cell membranes requires that the body uses which process?

A. rapid filtration.
B. charged diffusion.
C. a chemical pump. (Correct)
D. osmosis.

Rationale: Active transport of ions and other water-soluble particles of the cell membrane require a chemical pump, such as insulin, to move glucose into the cell. None of the other options are relevant to the process of active transport.

Q25: Which term is associated with the passage of water containing dissolved materials through a membrane as the result of a greater mechanical force on one side?

A. Metabolism
B. Mitosis
C. Filtration (Correct)
D. Osmosis

Rationale: Filtration is the movement of water and particles through a membrane by a force from either pressure or gravity. Metabolism refers to all the chemical processes in the body that convert or use energy. Mitosis is a form of cell division. Osmosis is the passage of water across a selectively permeable membrane, with the water molecules going from the less concentrated solution to the more concentrated solution least one impermeable solute

Q26: The nurse is aware that when a patient reports pain in the epigastric region, the source of the pain is most likely to be a disorder involving which organ?

A. urinary bladder
B. transverse colon.
C. stomach. (Correct)
D. appendix.

Rationale: The epigastric region of the abdomen is comprised of parts of the right and left lobes of the liver and a large portion of the stomach. The hypogastric region contains loops of the small intestine, the urinary bladder, and the appendix. The umbilical region contains a portion of the transverse colon, and loops of the small intestine.

Q27: Which are tissues that cover the outside of the body and some internal structures?

A. Connective

B. Epithelial (Correct)

C. Nerve

D. Muscle

Rationale: Epithelial tissue covers the outside of the body and some of the internal structures. Muscle tissue is composed of cells that contract in response to a message from the brain or spinal cord. Connective tissue "connects," or joins, tissues or structures of the body, and it supports and protects them. A membrane is a thin sheet of tissue or layer of cells acting as a boundary, lining, or partition in an organism. Nervous tissue allows rapid communication between the brain or spinal cord and body structures and allows control of body functions.

Q28: When the nurse assesses an arm in proximal to distal order, the assessment is performed in which manner?

A. From the shoulder to the fingers. (Correct)

B. From the front to the back.

C. From the fingers to the center of the body.

D. From the center of the body to the fingers.

Rationale: Proximal is nearest the origin of the structure. Distal is farthest from the origin of the structure.

Q29: Which is the function of epithelial membranes?

A. Secretes mucus, lines ends of bones, and lines bursae.

B. Lines ends of bones, secretes synovial fluid, and lines internal surfaces of organs.

C. Covers the wall of lower digestive tract, secretes mucus, and lines lungs, peritoneum, and pericardium. (Correct)

D. Lines lungs, peritoneum, and pericardium, and secretes synovial fluid.

Rationale: The epithelial membrane secretes mucus, lines the lungs, peritoneum, and pericardium, and covers the wall of the lower digestive tract. The synovial membrane secretes synovial fluid to prevent friction between joints and the ends of bones, and lines the bursae found between moving body parts.

Q30: The nurse explains that pinocytosis is a process by which cells perform which action?

A. divide.

B. take in extracellular fluid. (Correct)

C. use a chemical pump.

D. convert mitochondria.

Rationale: Pinocytosis is a process by which the cell wall makes an indentation allowing extracellular fluid to fill in, then encloses it into the cell. None of the other options are relevant to pinocytosis

Q31: Which is the most complex structural level of organization of the body?

A. Body as a whole (Correct)

B. Cellular

C. Organs

D. Chemical

Rationale: The structural levels of organization progress from the least complex (chemical) through cells, tissues, organs, and systems to the most complex (the body as a whole).

Q32: Which structure forms the outer boundary of the cell?

A. The nucleus

B. The cytoplasm

C. The plasma membrane (Correct)

D. The endoplasmic reticulum

Rationale: The plasma membrane encloses the cytoplasm and forms the outer boundary of the cell. The nucleus, cytoplasm and endoplasmic reticulum are internal structures in the cell. The remaining options are parts of a cell.

Q33: The nurse explains that which small saclike structures inside the cell digest compounds that have invaded the cell?

A. Golgi apparatus

B. Centrioles

C. Lysosomes (Correct)

D. Ribosomes

Rationale: Lysosomes are small saclike structures inside the cell that digest compounds that have invaded the cell. The Golgi apparatus usually is located near the nucleus. It is the "packaging plant" of the cell. It packages certain carbohydrate and protein compounds into globules. The centrioles are paired, rod-shaped organelles. During cell division (mitosis), they aid in the formation of the spindle, a structure necessary for cell reproduction. Ribosomes are tiny structures floating free in the cytoplasm or attached to the rough ER. They are called protein factories because they produce enzymes and other proteins.

Q34: Which body plane divides the body into the ventral and dorsal sections?

A. Sagittal

B. Coronal (Correct)

C. Midsagittal

D. Transverse

Rationale: The coronal plane divides the body into ventral and dorsal (front and back) sections. The sagittal plane runs lengthwise from the front to the back. A sagittal cut gives a right and a left portion of the body. A midsagittal cut gives two equal halves. The transverse plane cuts the body horizontal to the sagittal and frontal planes, dividing the body into caudal and cranial portions.

Q35: Which term is used to identify one of the body's systems? (Select all that apply.) *(Select all that apply.)*

A. Lymphatic (Correct)
B. Nervous
C. Digestive (Correct)
D. Reproductive (Correct)
E. Accessory

Rationale: There are 11 body systems: integumentary, respiratory, skeletal, digestive, muscular, nervous, endocrine, urinary, reproductive, cardiovascular, and lymphatic.

Q36: Which are characteristics of smooth muscles? (Select all that apply.) *(Select all that apply.)*

A. Involuntary (Correct)
B. Nonstriated (Correct)
C. Striated
D. Independent from the spinal cord
E. Voluntary
F. Present in the blood vessels (Correct)

Rationale: Smooth (visceral) muscles are nonstriated, involuntary, and respond to messages from the spinal cord.

Q37: Which are passive transport mechanisms that move material across the cell membranes? (Select all that apply.) *(Select all that apply.)*

A. Diffusion (Correct)
B. Pinocytosis
C. Filtration (Correct)
D. Osmosis (Correct)
E. Phagocytosis

Rationale: The passive transport systems are diffusion, filtration, and osmosis. Phagocytosis and pinocytosis are active transport processes

Q38: Which organs can be found in the dorsal cavity? (Select all that apply.) *(Select all that apply.)*

A. Descending colon
B. Kidneys
C. Gallbladder
D. Brain (Correct)
E. Pancreas
F. Spinal cavities (Correct)

Rationale: The dorsal cavity is composed of only the brain and the spinal cavities.

Q39: The nurse clarifies that epithelial tissue preforms which functions? (Select all that apply.) *(Select all that apply.)*

A. Protection (Correct)

B. Elimination

C. Secretion (Correct)

D. Absorption (Correct)

E. Elimination

Rationale: The function of epithelial tissue is protection by covering the body and preventing invasion; absorption by absorbing material; and secretion by secreting mucus to line and moisten the body surfaces.

Review Questions - Chapter 01

Q1: Which is the muscle that separates the thoracic cavity from the abdominal cavity?

A. Mediastinum
B. Diaphragm (Correct)
C. Pleural muscle
D. Intracostal muscle

Rationale: The diaphragm, a muscle directly beneath the lungs, separates the ventral cavity into the thoracic (chest) and abdominal cavities. The mediastinum is a subdivision of the thoracic cavity that contains the trachea, heart, and blood vessels. The pleural muscle is a fictitious muscle. Intracostals are muscles between the ribs.

Q2: Which is the largest organelle within the cell, and is responsible for cell reproduction and control of other organelles?

A. Nucleus (Correct)
B. Endoplasmic reticulum (ER)
C. Ribosome
D. Mitochondria

Rationale: The nucleus is the largest organelle within the cell and is responsible for cell reproduction and control of other organelles. The endoplasmic reticulum is a system of membranes that functions as a miniature circulating system for the cell. Ribosomes are tiny free-floating structures in the cytoplasm or attached to the rough ER. The mitochondria are the "powerhouse" of the cell.

Q3: The sodium-potassium pump is an example of which process?

A. A passive transport
B. An active transport (Correct)
C. A filtration
D. Osmosis

Rationale: The sodium-potassium pump is an example of an active transport process. Certain enzymes play a role in active transport, providing a chemical "pump" to help substances move through the cell membrane. In passive transport, no cellular energy is required to move substances from a higher concentration to a lower concentration. Filtration and osmosis are examples of passive transport process.

Q4: Which type of tissue is packed closely together and contains no blood vessels?

A. Connective tissue
B. Muscle tissue
C. Nervous tissue

D. Epithelial tissue (Correct)

Rationale: Epithelial tissue is the type of tissue that is packed closely together and that contains no blood vessels. It covers the outside of the body and some of the internal structures. Connective tissue "connects" joints, tissues, or structures of the body. Muscle tissue is composed of cells that contract in response to a message from the brain or spinal cord. Nervous tissue provides rapid communication between body structure and control of body functions.

Q5: Which does the term "medial" refers to in anatomic terms?

A. Front
B. Back
C. Midline (Correct)
D. Head

Rationale: Medial refers to the midline of the body. Anterior refers to the front of the body. Posterior refers to the back of the body. Cranial refers to the head.

Q6: Which body plane runs lengthwise from the front to the back?

A. Sagittal plane (Correct)
B. Coronal plane
C. Frontal plane
D. Transverse plane

Rationale: The sagittal plane runs lengthwise from the front to the back. The coronal plane, also called the frontal plane, divides the body into a ventral (front) section and a dorsal (back) section. The frontal plane is another name for the coronal plane. The transverse plane cuts the body horizontally into the sagittal and the frontal planes, dividing the body into caudal and cranial portions.

Q7: What is the final phase of mitosis, in which the two nuclei appear and the chromosomes disperse?

A. Prophase
B. Metaphase
C. Anaphase
D. Telophase (Correct)

Rationale: Telophase is the final phase of mitosis, in which the two nuclei appear and the chromosomes disperse. In prophase, chromosomes form two strands in the nucleus, and centrioles in the cytoplasm, form a network of spindle fibers. In metaphase, the nucleus membrane and nucleolus disappear, and chromosomes are aligned across the center of the cell. In anaphase, chromosomes are pulled to opposite ends of the cell and cell division begins.

Q8: Which is the process that permits a cell to engulf or surround any foreign material and digest it?

A. Pinocytosis
B. Phagocytosis (Correct)
C. Osmosis
D. Filtration

Rationale: Phagocytosis is the process that permits a cell to engulf or surround any foreign material and digest it. Pinocytosis is the process by which extracellular fluid is taken into the cell. Osmosis and filtration are passive transport processes.

Q9: Adipose tissue, bone, cartilage, and blood are examples of which type of tissue?

A. muscle
B. connective (Correct)
C. nervous
D. epithelial

Rationale: Connective tissue "connects" joints, tissues, or structures of the body. Examples include areolar tissue, adipose tissue, fibrous connective tissue, bone, cartilage, blood, and hemopoietic tissue. The three types of muscle tissue are cardiac, skeletal, and smooth. Examples of nervous tissue are neurons and glial cells. Epithelial tissue is either simple squamous, stratified squamous, simple columnar, or stratified transitional.

Q10: Which pair represents the least complex and most complex structures associated with the body?

A. Atoms and organs
B. Cells and tissues
C. Molecules and tissues
D. Quarks and systems (Correct)

Rationale: Quarks are the building blocks of protons and neutrons that comprise the atom. Atoms are the smallest complete units of all matter. Two or more atoms form a molecule; cells are the smallest living units of structure and function in our bodies. A tissue is an organization of many similar cells that act together. Organs are groups of several kinds of tissues; a system is an organization of varying numbers and kinds of organs.