

# **Applied Pathophysiology for the Advanced Practice Nurse**

## **1st Edition Dlugasch Story Test Bank**

### **Chapter 1 Cellular Function**

1.	The nucleus _____, which is essential for function and survival of the cell.
A)	is the site of protein synthesis
B)	contains the genetic code
C)	transforms cellular energy
D)	initiates aerobic metabolism

2.	Although energy is not made in mitochondria, they are known as the power plants of the cell because they:
A)	contain RNA for protein synthesis.
B)	utilize glycolysis for oxidative energy.
C)	extract energy from organic compounds.
D)	store calcium bonds for muscle contractions.

3.	Although the basic structure of the cell plasma membrane is formed by a lipid bilayer, most of the specific membrane functions are carried out by:
A)	bound and transmembrane proteins.
B)	complex, long carbohydrate chains.
C)	surface antigens and hormone receptors.
D)	a gating system of selective ion channels.

4.	To effectively relay signals, cell-to-cell communication utilizes chemical messenger systems that:
A)	displace surface receptor proteins.

B)	accumulate within cell gap junctions.
C)	bind to contractile microfilaments.
D)	release secretions into extracellular fluid.

5.	Aerobic metabolism, also known as oxidative metabolism, provides energy by:
A)	removing the phosphate bonds from ATP.
B)	combining hydrogen and oxygen to form water.
C)	activating pyruvate stored in the cytoplasm.
D)	breaking down glucose to form lactic acid.

6.	Exocytosis, the reverse of endocytosis, is important in_____into the extracellular fluid.
A)	Engulfing and ingesting fluid and proteins for transport
B)	Killing, degrading, and dissolving harmful microorganisms
C)	Removing cellular debris and releasing synthesized substances
D)	Destruction of particles by lysosomal enzymes for secretion

7.	The process responsible for generating and conducting membrane potentials is:
A)	diffusion of current-carrying ions.
B)	millivoltage of electrical potential.
C)	polarization of charged particles.
D)	ion channel neurotransmission.

8.	Epithelial tissues are classified according to the shape of the cells and the number of layers. Which of the following is a correctly matched description and type of epithelial tissue?
A)	Simple epithelium: cells in contact with intercellular matrix; some do not extend to surface

B)	Stratified epithelium: single layer of cells; all cells rest on basement membrane
C)	Glandular epithelium: arise from surface epithelia and underlying connective tissue
D)	Pseudostratified epithelium: multiple layers of cells; deepest layer rests on basement membrane

9.	Connective tissue contains fibroblasts that are responsible for:
A)	providing a fibrous framework for capillaries.
B)	synthesis of collagen, elastin, and reticular fibers.
C)	forming tendons and the fascia that covers muscles.
D)	filling spaces between tissues to keep organs in place.

10.	Although all muscle tissue cells have some similarities, smooth muscle (also known as involuntary muscle) differs by:
A)	having dense bodies attached to actin filaments.
B)	containing sarcomeres between Z lines and M bands.
C)	having rapid contractions and abundant cross-striations.
D)	contracting in response to increased intracellular calcium.

11.	Which of the following aspects of the function of the nucleus is performed by ribosomal RNA (rRNA)?
A)	Copying and carrying DNA instructions for protein synthesis
B)	Carrying amino acids to the site of protein synthesis
C)	Providing the site where protein synthesis occurs
D)	Regulating and controlling protein synthesis

12.	Breakdown and removal of foreign substances and worn-out cell parts are performed by which of the following organelles?
A)	Lysosomes

B)	Golgi apparatus
C)	Ribosomes
D)	Endoplasmic reticulum (ER)

13	Impairment in the function of peroxisomes would result in:
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A)	inadequate sites for protein synthesis.
B)	an inability to transport cellular products across the cell membrane.
C)	insufficient energy production within a cell.
D)	accumulation of free radicals in the cytoplasm.

14	After several months of trying to conceive, a couple is undergoing fertility testing. Semen analysis indicates that the mans sperm have decreased motility, a finding that is thought to underlie the couples inability to become pregnant. Which of the following cellular components may be defective within the mans sperm?
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A)	Ribosomes
B)	Microtubules
C)	Mitochondria
D)	Microfilaments

15	Which of the following statements is true of glycolysis?
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A)	Glycolysis requires oxygen.
B)	Glycolysis occurs in cells without mitochondria.
C)	Glycolysis provides the majority of the bodys energy needs.
D)	Glycolysis produces energy, water, and carbon dioxide.

16	Which of the following membrane transport mechanisms requires the greatest amount of energy?
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A)	Facilitated diffusion

B)	Passive transport
C)	Vesicular transport
D)	Simple diffusion

17 .	A male patient with a diagnosis of type 1 diabetes mellitus is experiencing hyperglycemia because he lacks sufficient insulin to increase the availability of glucose transporters in his cell membranes. Consequently, his cells lack intracellular glucose and it accumulates in his blood. Which of the following processes would best allow glucose to cross his cell membranes?
A)	Facilitated diffusion
B)	Simple diffusion
C)	Secondary active transport
D)	Endocytosis

18 .	Which of the following statements is true of skeletal muscle cells?
A)	Skeletal muscle cells each have an apical, lateral, and basal surface.
B)	They are closely apposed and are joined by cell-to-cell adhesion molecules.
C)	Their basal surface is attached to a basement membrane.
D)	Skeletal muscle is multinucleated, lacking true cell boundaries.

19 .	Which of the following body tissues exhibits the highest rate of turnover and renewal?
A)	The squamous epithelial cells of the skin
B)	The connective tissue supporting blood vessels
C)	The skeletal muscle that facilitates movement
D)	The nervous tissue that constitutes the central nervous system

20 .	A patient with a pathophysiologic condition that affects the desmosomes is most likely to exhibit:
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A)	impaired contraction of skeletal and smooth muscle.
B)	weakness of the collagen and elastin fibers in the extracellular space.
C)	impaired communication between neurons and effector organs.
D)	separation at the junctions between epithelial cells.

### Answer Key

1.	B
2.	C
3.	A
4.	D
5.	B
6.	C
7.	A
8.	C
9.	B
10	A
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11	C
.	
12	A
.	
13	D
.	
14	B
.	
15	B
.	
16	C
.	

17	A
.	
18	D
.	
19	A
.	
20	D
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## Chapter 2 Immunity

1.	Innate immunity, also called natural or native immunity, consists of mechanisms that respond specifically to:
A)	self-cells.
B)	microbes.
C)	antibodies.
D)	inflammation.

2.	Adaptive immune responses, also called acquired or specific immunity, are composed of _____ and their products.
A)	granulocytes
B)	lymphocytes
C)	epithelial cells
D)	Toll-like receptors

3.	The effector cells of the immune system have the primary function of:
A)	activating phagocytic cells.
B)	eliminating the antigens.
C)	processing antigen into epitopes.
D)	controlling the immune response.

4.	Activation of lymphocytes is dependent upon the _____ and _____ of the antigens by macrophages.
A)	memory; clustering
B)	capture; destruction
C)	recognition; grouping
D)	processing; presentation

5.	Major histocompatibility complex (MHC) molecules, with human leukocyte antigens (HLAs), are markers on all nucleated cells and have an important role in:
A)	identifying blood types.
B)	cell membrane transport.
C)	suppressing viral replication.
D)	avoiding transplant rejections.

6.	Dendritic cells, found in skin tissues and lymphoid tissues, are important for:
A)	initiation of adaptive immunity.
B)	deep-tissue phagocytosis.
C)	disposal of dead cells.
D)	delaying inflammation.

7.	Once T helper cells are activated, they secrete _____ that activate and regulate nearly all of the other cells of the immune system.
A)	complement proteins
B)	cytokines
C)	leukotrienes
D)	bradykinins



8.	The first circulating immunoglobulin to appear in response to a new antigen is:
A)	IgG.
B)	IgM.
C)	IgA.
D)	IgD.

9.	The effector function of activated members of the complement system includes all of the following EXCEPT:
A)	chemotaxis.
B)	opsonization.
C)	pathogen lysis.
D)	phagocytosis.

10.	During the latent period before antibodies are detected in the humoral immune response, B cells differentiate into_____cells.
A)	plasma
B)	cytotoxic
C)	stem
D)	helper

11.	Which of the following would participate in the innate immune response to an infectious microorganism?
A)	T lymphocytes
B)	Antibodies
C)	B lymphocytes
D)	Neutrophils

12 .	A patient has recently received a pneumococcal vaccine and the patients B cells are consequently producing antibodies. Which of the following cells may enhance this production of antibodies?
A)	Helper T cells
B)	Regulatory T cells
C)	Cytotoxic T cells
D)	Natural killer cells

13 .	A childs thymus gland is fully formed and proportionately larger than an adults. Which of the following processes that contribute to immunity takes place in the thymus gland?
A)	Differentiation of B cells
B)	Production of natural killer (NK) cells
C)	Proliferation of T cells
D)	Filtration of antigens from the blood

14 .	A patients exposure to an antibiotic-resistant microorganism while in the hospital has initiated an immune response, a process that is mediated and regulated by cytokines. Which of the following statements is true of cytokines?
A)	They are stored in the peripheral lymphoid tissues until required.
B)	They have a long half-life that contributes to an ongoing immune response.
C)	They are normally released at cell-to-cell interfaces, binding to specific receptors.
D)	They are capable of performing phagocytosis in the response to viral invasion.

15 .	The entrance of a microbe into an individuals vascular space has initiated opsonization. Which of the following processes is involved in opsonization?
A)	Stimulation of B cells by helper T cells
B)	Coating of a microbe to aid phagocyte recognition

C)	Release of proteins that stimulate cell production by the bone marrow
D)	Lysis of intracellular microbes by cytotoxic T cells

16 .	Bacteria on a sliver in a boy's finger have initiated an adaptive immune response. The boy's lymphocytes and antibodies recognize immunologically active sites on the bacterial surfaces known as:
A)	Toll-like receptors.
B)	opsonins.
C)	chemokines.
D)	epitopes.

17 .	Histocompatibility molecules are of primary importance to which of the following aspects of immunity?
A)	Induction of T-cell immunity
B)	T-cell maturation
C)	NK cell activation
D)	Phagocytosis by neutrophils

18 .	Prior to leaving on a backpacking trip to Southeast Asia, a college student has received a tetanus booster shot. This immunization confers protection by way of what immune process?
A)	Secondary humoral response
B)	Cell-mediated immune response
C)	Primary humoral response
D)	Innate immunity

19 .	A patient's cell-mediated immune response has resulted in the release of regulator T cells. These cells will perform which of the following roles?
A)	Suppressing the immune response to limit proliferation of potentially harmful lymphocytes
B)	Presenting antigens to B cells to facilitate the production of antibodies

C)	Differentiating into subpopulations of helper T cells
D)	Destroying target cells by releasing cytolytic enzymes and other toxins

20 .	A 1-day-old infant was exposed to an infectious microorganism prior to discharge home from the hospital, but was able to effect a sufficient immune response in the hours and days following exposure. This immune response may have been due to the presence of which of the following immunoglobulins from the infants mother?
A)	IgA
B)	IgG
C)	IgM
D)	IgD

#### Answer Key

1.	B
2.	B
3.	B
4.	D
5.	D
6.	A
7.	B
8.	B
9.	D
10 .	A
11 .	D
12 .	A