

Score for this quiz: **118** out of 120

Submitted Jul 29 at 7:12am

This attempt took 54 minutes.

Question 1

2 / 2 pts

The lung is innervated by the parasympathetic nervous system via which nerve?



Vagus



Phrenic



Brachial



Pectoral

Fibers of the parasympathetic division of the autonomic nervous system (ANS) travel only in the vagus nerve to the lung.

Question 2

2 / 2 pts

What is the action of urodilatin?



Urodilatin causes vasoconstriction of afferent arterioles.



It causes vasodilation of the efferent arterioles.



Urodilatin inhibits antidiuretic hormone secretion.



It inhibits salt and water reabsorption.

Urodilatin (a natriuretic peptide) inhibits sodium and water reabsorption from the medullary part of collecting duct, thereby producing diuresis. It is not involved in the actions described by the other options.

Question 3

2 / 2 pts

What is the direct action of atrial natriuretic hormone?



Sodium retention



Sodium excretion



Water retention



Water excretion

Atrial natriuretic peptide (ANP) and brain natriuretic peptide (BNP) inhibit the secretion of renin, inhibit angiotensin-induced secretion of aldosterone, vasodilate the afferent and constrict the efferent glomerular arterioles, and inhibit sodium and water absorption by kidney tubules. The other actions are not a result of the atrial natriuretic hormone.

Question 4

2 / 2 pts

Which statement best describes a Schilling test?



Administration of radioactive cobalamin and the measurement of its excretion in the urine to test for vitamin B₁₂ deficiency



Measurement of antigen-antibody immune complexes in the blood to test for hemolytic anemia



Measurement of serum ferritin and total iron-binding capacity in the blood to test for iron deficiency anemia



Administration of folate and measurement in 2 hours of its level in a blood sample to test for folic acid deficiency anemia.

The Schilling test indirectly evaluates vitamin B₁₂ absorption by administering radioactive B₁₂ and measuring excretion in the urine. This selection is the only option that accurately describes a Schilling test.

Question 5

2 / 2 pts

Hemolytic disease of the newborn (HDN) can occur if the mother:



Is Rh-positive and the fetus is Rh-negative



Is Rh-negative and the fetus is Rh-positive



Has type A blood and the fetus has type O



Has type AB blood and the fetus has type B

HDN can occur only if antigens on fetal erythrocytes differ from antigens on maternal erythrocytes. Maternal-fetal incompatibility exists only if the mother and fetus differ in ABO blood type or if the fetus is Rh-positive and the mother is Rh-negative. This erythrocyte incompatibility does not exist in any of the other options.

Question 6

2 / 2 pts

Which T-lymphocyte phenotype is the key determinant of childhood asthma?

☐

Cluster of differentiation (CD) 4 T-helper Th₁ lymphocytes

☒

CD4 T-helper Th₂ lymphocytes

☐

CD8 cytotoxic T lymphocytes

☐

Memory T lymphocytes

Asthma develops because the Th₂ response (in which CD4 T-helper cells produce specific cytokines, such as interleukin [IL]–4, IL-5, and IL-13) promotes an atopic and allergic response in the airways. This selection is the only option that accurately identifies the appropriate T-lymphocyte phenotype.

Question 7

2 / 2 pts

Perceived stress elicits an emotional, anticipatory response that begins where?

☐

Prefrontal cortex

☐

Anterior pituitary

☒

Limbic system



Hypothalamus

Perceived stressors elicit an anticipatory response that begins in the limbic system of the brain, the only option responsible for emotions and cognition.

Question 8

2 / 2 pts

Hypersensitivity is best defined as a(an):



Disturbance in the immunologic tolerance of self-antigens



Immunologic reaction of one person to the tissue of another person



Altered immunologic response to an antigen that results in disease



Undetectable immune response in the presence of antigens

Hypersensitivity is an altered immunologic response to an antigen that results in disease or damage to the host. The other options are not accurate definitions of hypersensitivity.

Question 9

2 / 2 pts

It has been determined that a tumor is in stage 2. What is the meaning of this finding?



Cancer is confined to the organ of origin.



Cancer has spread to regional structures.



Cancer is locally invasive.



Cancer has spread to distant sites

Cancer confined to the organ of origin is stage 1; cancer that is locally invasive is stage 2; cancer that has spread to regional structures, such as the lymph nodes, is stage 3; and cancer that has spread to distant sites, such as a liver cancer spreading to the lung or a prostate cancer spreading to bone, is stage 4.

Question 10

2 / 2 pts

An infant has a loud, harsh, holosystolic murmur and systolic thrill that can be detected at the left lower sternal border that radiates to the neck. These clinical findings are consistent with which congenital heart defect?



Atrial septal defect (ASD)



Ventricular septal defect (VSD)



Patent ductus arteriosus (PDA)



Atrioventricular canal (AVC) defect

On physical examination, a loud, harsh, holosystolic murmur and systolic thrill can be detected at the left lower sternal border. The intensity of the murmur reflects the pressure gradient across the VSD. An apical diastolic rumble may be present with a moderate-to-large defect, reflecting increased flow across the mitral valve. The

presentations of the other congenital heart defects are not consistent with the described symptoms.

Question 11

2 / 2 pts

Which statement concerning exotoxins is *true*?



Exotoxins are contained in cell walls of gram-negative bacteria.



Exotoxins are released during the lysis of bacteria.



Exotoxins are able to initiate the complement and coagulation cascades.



Exotoxins are released during bacterial growth.

Exotoxins are proteins released during bacterial growth. The other options are not true of exotoxins.

Question 12

2 / 2 pts

The function of the foramen ovale in a fetus allows what to occur?



Right-to-left blood shunting



Left-to-right blood shunting



Blood flow from the umbilical cord



Blood flow to the lungs

The nonfused septum secundum and ostium secundum result in the formation of a flapped orifice known as the *foramen ovale*, which allows the right-to-left shunting necessary for fetal circulation. The foramen ovale is not involved in the blood flow described by the other options.

Question 13

2 / 2 pts

Which laboratory test is considered adequate for an accurate and reliable diagnosis of gonococcal urethritis in a symptomatic man?



Ligase chain reaction (LCR)



Gram-stain technique



Polymerase chain reaction (PCR)



DNA testing

Microscopic evaluation of Gram-stained slides of clinical specimens is deemed positive for *Neisseria gonorrhoeae* if gram-negative diplococci with the typical “kidney bean” morphologic appearance are found inside polymorphonuclear leukocytes. Such a finding is considered adequate for the diagnosis of gonococcal urethritis in a symptomatic man. The other options are not relevant to the diagnosis of this condition.

Question 14

2 / 2 pts

Which manifestations of vasoocclusive crisis are associated with sickle cell disease (SCD) in infants?



Atelectasis and pneumonia



Edema of the hands and feet



Stasis ulcers of the hands, ankles, and feet



Splenomegaly and hepatomegaly

Symmetric, painful swelling of the hands and feet (hand-foot syndrome) caused by infarction in the small vessels of the extremities is often the initial manifestation of SCD in infants. This selection is the only option that accurately identifies the manifestations of a vasoocclusive crisis associated with SCD in infancy.

Question 15

2 / 2 pts

Which statement concerning benign tumors is *true*?



The resulting pain is severe.



Benign tumors are not encapsulated.



Benign tumors are fast growing.



The cells are well-differentiated.

A benign tumor is well-differentiated with its tissue appearing similar to the tissue from which it arose. The other options are characteristic of a malignant tumor.

Question 16

2 / 2 pts

Which primary characteristic is unique for the immune response?



The immune response is similar each time it is activated.



The immune response is specific to the antigen that initiates it.



The response to a specific pathogen is short term.



The response is innate, rather than acquired.

Unlike inflammation, which is nonspecifically activated by cellular damage and pathogenic microorganisms, the immune response is primarily designed to afford long-term specific protection (i.e., immunity) against particular invading microorganisms; that is, it has a *memory* function. The other options are not unique characteristics of the immune response.

Question 17

2 / 2 pts

Which criterion is used to confirm a diagnosis of asthma in an 8-year-old child?



Parental history of asthma



Serum testing that confirms increased immunoglobulin E (IgE) and eosinophil levels



Reduced expiratory flow rates confirmed by spirometry testing



Improvement on a trial of asthma medication

Confirmation of the diagnosis of asthma relies on pulmonary function testing using spirometry, which can be accomplished only after the child is 5 to 6 years of age. Reduced expiratory flow rates that are reversible in response to an inhaled bronchodilator would be characteristic abnormalities. For younger children, an empiric trial of asthma medications is commonly initiated. The remaining options are major historical and physical factors that contribute but do not confirm the diagnosis of asthma in children.

Question 18

0 / 2 pts

Where are antibodies produced?



Helper T lymphocytes



Thymus gland

Correct Answer



Plasma cells



Bone marrow

An antibody or immunoglobulin is a serum glycoprotein produced only by plasma cells in response to a challenge by an immunogen.

Question 19

2 / 2 pts

How much urine accumulates in the bladder before the mechanoreceptors sense bladder fullness?



75 to 100 ml



100 to 150 ml



250 to 300 ml



350 to 400 ml

When the bladder accumulates 250 to 300 ml of urine, it contracts and the internal urethral sphincter relaxes through activation of the spinal reflex arc (known as the *micturition reflex*).

Question 20

2 / 2 pts

Which disorder results in decreased erythrocytes and platelets with changes in leukocytes and has clinical manifestations of pallor, fatigue, petechiae, purpura, bleeding, and fever?



Idiopathic thrombocytopenic purpura (ITP)



Acute lymphocytic leukemia (ALL)



Non-Hodgkin lymphoma (NHL)



Iron deficiency anemia (IDA)

Pallor, fatigue, petechiae, purpura, bleeding, and fever are generally present with the most common symptoms reflecting the consequence of bone marrow failure, which results in decreased red blood cells and platelets and changes in white blood cells. This selection is the only option that correctly identifies the disease with the symptoms described.

Question 21

2 / 2 pts

Carcinoma in situ is characterized by which changes?



Cells have broken through the local basement membrane.



Cells have invaded immediate surrounding tissue.



Cells remain localized in the glandular or squamous cells.



Cellular and tissue alterations indicate dysplasia.

Carcinoma in situ (CIS) refers to preinvasive epithelial malignant tumors of glandular or squamous cell origin. These early stage cancers are localized to the epithelium and have not broken through the local basement membrane or invaded the surrounding tissue. Dysplasia refers to changes in mature cell structure.

Question 22

2 / 2 pts

What is the life span of platelets (*in days*)?



10



30



90



120

A platelet circulates for approximately 10 days and ages. Macrophages of the mononuclear phagocyte system, mostly in the spleen, remove platelets.

Question 23

2 / 2 pts

What is the primary cause of respiratory distress syndrome (RDS) of the newborn?



Immature immune system



Small alveoli



Surfactant deficiency



Anemia

RDS is primarily caused by surfactant deficiency and secondarily by a deficiency in alveolar surface area for gas exchange. None of the other options are related to the cause of RDS.

Question 24

2 / 2 pts

What is the life span of an erythrocyte (*in days*)?



20 to 30



60 to 90



100 to 120



200 to 240

Because it cannot undergo mitotic division, the erythrocyte has a limited life span of approximately 120 days.

Question 25

2 / 2 pts

Low plasma albumin causes edema as a result of a reduction in which pressure?



Capillary hydrostatic



Interstitial hydrostatic



Plasma oncotic



Interstitial oncotic

Losses or diminished production of plasma albumin is the only option that contributes to a decrease in plasma oncotic pressure.

Question 26

2 / 2 pts

Which blood cell type is elevated at birth but decreases to adult levels during the first year of life?



Monocytes



Platelets



Neutrophils



Lymphocytes

Only monocyte counts are high in the first year of life and then decrease to adult levels.

Question 27

2 / 2 pts

Which organ is stimulated during the alarm phase of the general adaptation syndrome (GAS)?



Adrenal cortex



Hypothalamus



Anterior pituitary



Limbic system

The alarm phase of the GAS begins when a stressor triggers the actions of the hypothalamus and the sympathetic nervous system (SNS) (see Figure 11-1). The other organs are not stimulated by the alarm phase of GAS.

Question 28

2 / 2 pts

Phagocytosis involves neutrophils actively attacking, engulfing, and destroying which microorganisms?



Bacteria



Fungi



Viruses



Yeasts

Invasion is the direct confrontation with an individual's primary defense mechanisms against only bacteria, which include the complement system, antibodies, and phagocytes, such as neutrophils and macrophages.

Question 29

2 / 2 pts

What part of the kidney controls renal blood flow, glomerular filtration, and renin secretion?



Macula densa



Visceral epithelium



Juxtaglomerular apparatus (JGA)



Filtration slits

Control of renal blood flow, glomerular filtration, and renin secretion occur at the JGA. Together, the juxtaglomerular cells and macula densa cells form the JGA. The control of renal blood flow, glomerular filtration, and renin secretion is not directed by any of the other options.

Question 30

2 / 2 pts

The risk for respiratory distress syndrome (RDS) decreases for premature infants when they are born between how many weeks of gestation?



16 and 20



20 and 24



24 and 30



30 and 36

Surfactant is secreted into fetal airways between 30 and 36 weeks. The other options are not true regarding the timeframe when the risk for RDS decreases.

Question 31

2 / 2 pts

What is the functional unit of the kidney called?



Glomerulus



Nephron



Collecting duct



Pyramid

The nephron is the functional unit of the kidney. Although the other options are also located in the kidney, they are not its functional units.

Question 32

2 / 2 pts

Which hepatitis virus is known to be sexually transmitted?



A



B



C



D

Only hepatitis B virus (HBV) is known to be sexually transmitted.

Question 33

2 / 2 pts

Which statement is *true* concerning the IgM?



IgM is the first antibody produced during the initial response to an antigen.



IgM mediates many common allergic responses.



IgM is the most abundant class of immunoglobulins.



IgM is capable of crossing the human placenta.

Typically, IgM is produced first (primary immune response), followed by IgG against the same antigen. The other options are not true statements regarding IgM.

Question 34

2 / 2 pts

Apoptosis is a(an):



Normal mechanism for cells to self-destruct when growth is excessive



Antigrowth signal activated by the tumor-suppressor gene *Rb*



Mutation of cell growth stimulated by the *TP53* gene



Transformation of cells from dysplasia to anaplasia

Normal cells have a mechanism that causes them to self-destruct when growth is excessive and cell cycle checkpoints have been ignored. Diverse stimuli, including normal development and excessive growth, trigger this self-destruct mechanism, called *apoptosis*. The remaining options do not describe apoptosis.

Question 35

2 / 2 pts

What are the abnormalities in cytokines found in children with cystic fibrosis (CF)?



Deficit of interleukin (IL)–1 and an excess of IL-4, IL-12, and interferon-alpha (IFN- α)



Deficit of IL-6 and an excess of IL-2, IL-8, and granulocyte colony-stimulating factor (G-CSF)



Deficit of IL-10 and an excess of IL-1, IL-8, and TNF- α



Deficit of IL-3 and an excess of IL-14, IL-24, and colony-stimulating factor (CSF)

Abnormal cytokine profiles have been documented in CF airway fluids, including deficient IL-10 and excessive IL-1, IL-8, and TNF- α , all changes conducive to promoting inflammation. This selection is the only option that accurately identifies the abnormalities in cytokines observed in children with CF.

Question 36

2 / 2 pts

Research supports the premise that exercise has a probable impact on reducing the risk of which cancer?



Liver



Endometrial



Stomach



Colon

The World Cancer Research Fund summarizes the effects as *convincing* for cancers of the colon and *probable* for postmenopausal breast cancer and endometrial cancer. The relationship is not supported for the remaining options.

Question 37

2 / 2 pts

Why is nasal congestion a serious threat to young infants?



Infants are obligatory nose breathers.



Their noses are small in diameter.



Infants become dehydrated when mouth breathing.



Their epiglottis is proportionally greater than the epiglottis of an adult's.

Infants up to 2 to 3 months of age are obligatory nose breathers and are unable to breathe in through their mouths. Nasal congestion is therefore a serious threat to a young infant. This selection is the only option that accurately describes why nasal congestion is a serious threat to young infants.

Question 38

2 / 2 pts

Between which months of age does sudden infant death syndrome (SIDS) most often occur?



0 and 1



2 and 4



5 and 6



6 and 7

The incidence of SIDS is low during the first month of life but sharply increases in the second month of life, peaking at 2 to 4 months and is unusual after 6 months of age.

Question 39

2 / 2 pts

In which primary immune deficiency is there a partial-to-complete absence of T-cell immunity?



Bruton disease



DiGeorge syndrome



Reticular dysgenesis



Adenosine deaminase deficiency

The principal immunologic defect in DiGeorge syndrome is the partial or complete absence of T-cell immunity. The other options are not the result of either a partial or complete absence of T-cell immunity.

Question 40

2 / 2 pts

Blood vessels of the kidneys are innervated by the:



Vagus nerve



Sympathetic nervous system



Somatic nervous system



Parasympathetic nervous system

The blood vessels of the kidney are innervated by the sympathetic noradrenergic fibers that cause arteriolar vasoconstriction and reduce renal blood flow. The other options are not involved in this process.

Question 41

2 / 2 pts

An individual is more susceptible to infections of mucous membranes when he or she has a seriously low level of which immunoglobulin antibody?

☐ IgG

☐ IgM

☒ IgA

☐ IgE

The IgA molecules found in bodily secretions are dimers anchored together through a J-chain and secretory piece. This secretory piece is attached to the IgA antibodies inside the mucosal epithelial cells and may function to protect these immunoglobulin antibodies against degradation by enzymes also found in the secretions, thus decreasing the risk of infections in the mucous membrane. The other options do not accurately identify the immunoglobulin antibody involved in mucous membrane infections.

Question 42

2 / 2 pts

Which term is used to identify the movement of gas and air into and out of the lungs?

☐ Perfusion

☒ Ventilation

☐ Respiration



Diffusion

Of the options available, ventilation is the only term used to identify the mechanical movement of gas or air into and out of the lungs.

Question 43

2 / 2 pts

What is the first stage in the infectious process?



Invasion



Colonization



Spread



Multiplication

From the perspective of the microorganisms that cause disease, the infectious process undergoes four separate stages of progression: (1) colonization, (2) invasion, (3) multiplication, and (4) spread.

Question 44

2 / 2 pts

What process allows the kidney to respond to an increase in workload?



Glomerular filtration



Secretion of 1,25-dihydroxyvitamin D₃



Increased heart rate



Compensatory hypertrophy

Compensatory hypertrophy allows the kidney to respond to an increase in workload throughout life. The remaining options are not relevant to accommodating an increased workload.

Question 45

2 / 2 pts

Which congenital heart defects occur in trisomy 13, trisomy 18, and Down syndrome?



Coarctation of the aorta (COA) and pulmonary stenosis (PS)



Tetralogy of Fallot and persistent truncus arteriosus



Atrial septal defect (ASD) and dextrocardia



Ventricular septal defect (VSD) and patent ductus arteriosus (PDA)

Congenital heart defects that are related to dysfunction of trisomy 13, trisomy 18, and Down syndrome include VSD and PDA (see Table 33-2). The other defects are not associated with dysfunction of trisomy 13, trisomy 18, and Down syndrome.

Question 46

2 / 2 pts

What is the trigone?



A smooth muscle that comprises the orifice of the ureter



The inner mucosal lining of the kidneys



A smooth triangular area between the openings of the two ureters and the urethra



One of the three divisions of the loop of Henle

The trigone is a smooth triangular area lying between the openings of the two ureters and the urethra. The other options do not accurately identify the trigone.

Question 47

2 / 2 pts

The coronary ostia are located in the:



Left ventricle



Aortic valve



Coronary sinus



Aorta

Coronary arteries receive blood through openings in the aorta, called the *coronary ostia*.

Question 48

2 / 2 pts

What is the chief predisposing factor for respiratory distress syndrome (RDS) of the newborn?



Low birth weight



Alcohol consumption during pregnancy



Premature birth



Smoking during pregnancy

RDS of the newborn, also known as hyaline membrane disease (HMD), is a major cause of morbidity and mortality in premature newborns. None of the other options are considered the chief predisposing factors for RDS.

Question 49

2 / 2 pts

The most common site of metastasis for a patient diagnosed with prostate cancer is which location?



Bones



Brain



Bladder



Kidney

The bone, especially the lumbar spine area, is the most common metastasis site for prostate cancer.

Question 50

2 / 2 pts

Which of the following is classified as a megaloblastic anemia?



Iron deficiency



Pernicious



Sideroblastic



Hemolytic

Pernicious anemia is the most common type of megaloblastic anemia. The remaining options are not classified as megaloblastic anemias.

Question 51

2 / 2 pts

The glomerular filtration rate is directly related to which factor?



Perfusion pressure in the glomerular capillaries



Diffusion rate in the renal cortex



Diffusion rate in the renal medulla



Glomerular active transport

The filtration of the plasma per unit of time is known as the *glomerular filtration rate* (GFR), which is directly related to only the perfusion pressure in the glomerular capillaries.

Question 52

2 / 2 pts

In a normal, nonmutant state, an oncogene is referred to as a:



Basal cell



Target cell



Caretaker gene



Proto-oncogene

In its normal nonmutant state, an oncogene is referred to as a *proto-oncogene*. The other options are not terms used to identify a nonmutant oncogene.

Question 53

2 / 2 pts

What is the most common cause of iron deficiency anemia (IDA)?



Decreased dietary intake



Chronic blood loss



Vitamin deficiency



Autoimmune disease

The most common cause of IDA in well-developed countries is pregnancy and chronic blood loss.

Question 54

2 / 2 pts

What effect do natriuretic peptides have during heart failure when the heart dilates?



Stimulates antidiuretic hormones.



Inhibits antidiuretic hormones.



Stimulates renin and aldosterone.



Inhibits renin and aldosterone.

Natriuretic peptides inhibit renin and aldosterone during heart failure when the heart dilates. These make up a group of peptide hormones, including atrial natriuretic peptide

(ANP), secreted from myocardial cells in the atria and brain natriuretic peptide (BNP) secreted from myocardial cells in the cardiac ventricles. When the heart dilates during volume expansion or heart failure, ANP and BNP inhibit sodium and water absorption by kidney tubules, inhibit the secretion of renin and aldosterone, vasodilate the afferent arterioles, and constrict the efferent arterioles. The result is increased urine formation, leading to decreased blood volume and blood pressure.

Question 55

2 / 2 pts

What is the major concern regarding the treatment of gonococci infections?



Development of antibiotic resistance



Changes in virulence



Changes in pathogenicity



Mutations into different strains

Several types of drug-resistant strains have been identified; they are penicillinase-producing *Neisseria gonorrhoeae* (PPNG), which is resistant to penicillin; tetracycline-resistant *N. gonorrhoeae* (TRNG), which is resistant to tetracycline; chromosomal control of mechanisms of resistance of *N. gonorrhoeae* (CMRNG), which is resistant to penicillin and tetracycline; and increasingly a fluoroquinolone-resistant *N. gonorrhoeae* (QRNG). The other options are not major concerns.

Question 56

2 / 2 pts

Immunoglobulin E (IgE) is associated with which type of hypersensitivity reaction?



I



II



III



IV

Hypersensitivity reactions have been divided into four distinct types: type I (IgE-mediated) hypersensitivity reactions, type II (tissue-specific) hypersensitivity reactions, type III (immune complex-mediated) hypersensitivity reactions, and type IV (cell-mediated) hypersensitivity reactions.

Question 57

2 / 2 pts

Which cytokines initiate the production of corticotropin-releasing hormone (CRH)?



IL-1 and IL-6



IL-2 and TNF- α



IFN and IL-12



TNF- β and IL-4

Although a number of stress factors initiate the production of CRH, of the options available, only high levels of IL-1 and IL-6 initiate such a response.

Question 58

2 / 2 pts

What is the primary site for uncomplicated local gonococci infections in men?



Epididymis



Lymph nodes



Urethra



Prostate

Uncomplicated local infections are observed primarily as urethral infections in men.

Question 59

2 / 2 pts

Continuous increases in left ventricular filling pressures result in which disorder?



Mitral regurgitation



Mitral stenosis



Pulmonary edema



Jugular vein distention

Pressure changes are important because increased left ventricular filling pressures back up into the pulmonary circulation, where they force plasma out through vessel walls, causing fluid to accumulate in lung tissues (pulmonary edema). This selection is the only option that accurately identifies the disorder described in the question.

Question 60

2 / 2 pts

Where in the respiratory tract do the majority of foreign objects aspirated by children finally lodge?



Trachea



Left lung



Bronchus



Bronchioles

Approximately 75% of aspirated foreign bodies lodge in a bronchus. The other options are not locations where children aspirate the majority of foreign objects.