

Biol-131 Exam 2 A

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) The systemic circuit contains oxygen-rich blood only.
 - A) True
 - B) False

- 2) Blood in the heart chambers provides most of the myocardium's oxygen and nutrient needs.
 - A) True
 - B) False

- 3) Which of the following carry oxygen-poor blood?
 - A) Pulmonary veins and pulmonary arteries
 - B) Pulmonary veins and vena cavae
 - C) Aorta and vena cavae
 - D) Venae cavae and pulmonary arteries
 - E) Aorta and pulmonary veins

- 4) Which of the following is the most superficial layer enclosing the heart?
 - A) Parietal pericardium
 - B) Visceral pericardium
 - C) Myocardium
 - D) Epicardium
 - E) Endocardium

- 5) Pericardial fluid is found between the _____ and the _____.
 - A) myocardium; endocardium
 - B) parietal; visceral membranes
 - C) visceral pericardium; epicardium
 - D) visceral pericardium; myocardium
 - E) epicardium; myocardium

- 6) The _____ are the superior chambers of the heart and the _____ are the inferior chambers of the heart.
 - A) left atria; right atria
 - B) left ventricles; right ventricles
 - C) visceral pericardia; parietal pericardia
 - D) ventricles; atria
 - E) atria; ventricles

- 7) The area where the major vessels lead to and from the heart's chambers is called the _____ of the heart. The pointy, inferior portion is called the _____.
- A) atrium; ventricle
 - B) ventricle; atrium
 - C) endocardium; epicardium
 - D) base; apex
 - E) apex; base
- 8) The _____ performs the work of the heart.
- A) endocardium
 - B) pericardial cavity
 - C) epicardium
 - D) fibrous skeleton
 - E) myocardium
- 9) The right atrioventricular valve (tricuspid) regulates the opening between the _____ and the _____.
- A) left atrium; left ventricle
 - B) right atrium; right ventricle
 - C) left ventricle; right ventricle
 - D) right atrium; left atrium
 - E) right atrium; left ventricle
- 10) Opening and closing of the heart valves is caused by _____.
- A) pressure gradients
 - B) valves contracting and relaxing
 - C) gravity
 - D) breathing
 - E) osmotic gradients
- 11) The _____ valve regulates the flow of blood between the right ventricle and the vessels leading to the lungs.
- A) right atrioventricular
 - B) mitral
 - C) left atrioventricular
 - D) aortic
 - E) pulmonary

- 12) The chordae tendinae of the AV valves are anchored to the _____ of the ventricles.
- A) papillary muscles
 - B) interatrial septum
 - C) pectinate muscles
 - D) trabeculae carnae
 - E) interventricular septum
- 13) The _____ is the pacemaker that initiates each heart beat.
- A) atrioventricular (AV) node
 - B) sympathetic division of the nervous system
 - C) autonomic nervous system
 - D) cardiac conduction system
 - E) sinoatrial (SA) node
- 14) Which is the correct path of an electrical excitation from the pacemaker to a cardiomyocyte in the left ventricle (LV)?
- A) Sinoatrial (SA) node → atrioventricular (AV) node → Subendothelial conducting network → atrioventricular (AV) bundle → cardiomyocyte in LV
 - B) Atrioventricular (AV) node → subendothelial conducting network → atrioventricular (AV) bundle → sinoatrial (SA) node → cardiomyocyte in LV
 - C) Atrioventricular (AV) node → sinoatrial (SA) node → atrioventricular (AV) bundle → Subendothelial conducting network → cardiomyocyte in LV
 - D) Sinoatrial (SA) node → atrioventricular (AV) node → atrioventricular (AV) bundle → Subendothelial conducting network → cardiomyocyte in LV
 - E) Sinoatrial (SA) node → atrioventricular (AV) bundle → atrioventricular (AV) node → Subendothelial conducting network → cardiomyocyte in LV
- 15) When sodium channels are fully open, the membrane of the ventricular cardiomyocyte _____.
- A) sharply repolarizes
 - B) sharply hyperpolarizes
 - C) plateaus
 - D) sharply depolarizes
 - E) has no response
- 16) Any abnormal cardiac rhythm is called a(n) _____.
- A) sinus rhythm
 - B) nodal rhythm
 - C) heart block
 - D) arrhythmia
 - E) ectopic focus
- 17) If the sinoatrial (SA) node is damaged, the heart will likely beat at _____ bpm.
- A) 10 to 20 B) 40 to 50 C) 20 to 40 D) 70 to 80 E) 0 to 10

- 18) The _____ provides most of the Ca^{2+} needed for myocardial contraction.
- A) sarcoplasmic reticulum
 - B) cytoskeleton
 - C) extracellular fluid
 - D) Golgi apparatus
 - E) mitochondria
- 19) The long plateau in the action potential observed in cardiomyocytes is probably related with _____ staying longer in the cytosol.
- A) Cl^-
 - B) Ca^{2+}
 - C) K^+
 - D) Na^+
 - E) Na^+ , K^+ , and Ca^{2+}
- 20) In a normal ECG, the deflection that is generated by ventricular repolarization is called the _____.
- A) S wave B) T wave C) R wave D) QRS wave E) P wave
- 21) Which vessels have the thickest tunica media?
- A) Large arteries
 - B) Small veins
 - C) Small arteries
 - D) Capillaries
 - E) Large veins
- 22) Where is the greatest volume of blood found in the body?
- A) Pulmonary circuit
 - B) Heart
 - C) Arteries
 - D) Capillaries
 - E) Veins
- 23) Alternative routes of blood supply are called _____.
- A) preferred channels
 - B) thoroughfare channels
 - C) metarterioles
 - D) capillary beds
 - E) anastomoses

- 24) Which of the following is associated with vasomotion?
- A) Collagen and elastic tissue in the tunica media
 - B) Smooth muscle in the tunica media
 - C) Fenestrations in the tunica externa
 - D) Endothelium in the tunica interna
 - E) Elastic tissue in the tunica externa
- 25) In people who stand for long periods, blood tends to pool in the lower limbs and this may result in varicose veins. What causes the varicose veins?
- A) Failure of the lymphatic valves
 - B) A ruptured aneurysm in a vein
 - C) An aneurysm or weak point in a vein
 - D) An aneurysm or weak point in an artery
 - E) Failure of the venous valves
- 26) Which of the following would decrease the velocity of blood flow?
- A) Increased blood pressure
 - B) Decreased vasomotion
 - C) Increased vessel radius
 - D) Increased afterload
 - E) Increased viscosity
- 27) Hypertension is commonly considered to be a chronic resting blood pressure higher than _____.
- A) 140/90 B) 130/60 C) 110/75 D) 200/90 E) 180/90
- 28) What is the most important force driving filtration at the arterial end of a capillary?
- A) Interstitial hydrostatic pressure
 - B) Blood colloid osmotic pressure
 - C) Tissue fluid colloid osmotic pressure
 - D) Blood hydrostatic pressure
 - E) Oncotic pressure
- 29) What is taken up by the capillaries at their venous end?
- A) Glucose
 - B) Organic nutrients
 - C) Amino acids
 - D) Waste products
 - E) Oxygen

- 30) Which of the following would decrease capillary filtration?
- A) Increased capillary permeability
 - B) Dietary protein deficiency
 - C) Obstructed venous return
 - D) Increased permeability of lymphatic capillaries
 - E) Dehydration
- 31) A bee sting can trigger a massive release of histamine, which causes _____ and a(n) _____ in arterial blood pressure.
- A) vasodilation; increase
 - B) vasoconstriction; oscillation
 - C) vasoconstriction; increase
 - D) vasodilation; decrease
 - E) vasoconstriction; decrease
- 32) What is the most important force in venous flow?
- A) The thoracic (respiratory) pump
 - B) The pressure generated by the heart
 - C) The skeletal muscle pump
 - D) The one way flow due to valves
 - E) Cardiac suction
- 33) Pulmonary arteries have _____ blood pressure compared to systemic arteries.
- A) considerably higher
 - B) a little higher
 - C) similar
 - D) considerably lower
 - E) a little lower
- 34) What are the afferent vessels that carry blood back to the heart?
- A) Veins
 - B) Arteries
 - C) Arterioles
 - D) Capillaries
- 35) Which of the following routes of blood flow is correct?
- A) Heart → distributing artery → conducting artery → arteriole → capillary → venule → large vein → medium vein → heart
 - B) Heart → venule → medium vein → large vein → capillary → conducting artery → distributing artery → arteriole → heart
 - C) Heart → conducting artery → distributing artery → arteriole → capillary → venule → medium vein → large vein → heart
 - D) Heart → large vein → medium vein → venule → capillary → arteriole → distributing artery → conducting artery → heart

- 36) Which of the following is a portal system?
- A) Heart → artery → vein → heart
 - B) Heart → artery → arteriole → capillary bed → venule → vein → vein → heart
 - C) Heart → artery → arteriole → capillary bed → arteriole → capillary bed → venule → vein → heart
 - D) Heart → artery → artery → arteriole → capillary bed → venule → vein → heart
- 37) Why does our blood pressure generally go up as we age?
- A) Our arteries get 'hard' and absorb less systolic force
 - B) Our arteries get 'hard' and absorb less diastolic force
 - C) Our veins get 'hard' and absorb less systolic force
 - D) Our veins get 'hard' and absorb less diastolic force
- 38) How is venous return to your heart affected when you go for an easy jog?
- A) It is decreased due to decreased skeletal muscular pump activity
 - B) It is increased due to increased skeletal muscular pump activity
 - C) It is increased due to decreased skeletal muscular pump activity
 - D) It is decreased due to increased skeletal muscular pump activity
- 39) During exercise, arterioles to the skeletal muscles _____.
- A) dilate in response to increased muscle metabolites
 - B) constrict in response to increased O₂ and decreased CO₂
 - C) constrict in response to increased muscle metabolites
 - D) dilate in response to increased O₂ and decreased CO₂
- 40) What is the path of blood flow from the heart to the lung tissues and back to the heart?
- A) Left ventricle → aorta → bronchial arteries → lung tissues → bronchial veins → azygos vein → superior vena cava → right atrium
 - B) Right ventricle → brachiocephalic arteries → lung tissues → brachiocephalic veins → inferior vena cava → left atrium
 - C) Left ventricle → aorta → brachiocephalic artery → lung tissues → bronchial veins → brachiocephalic vein → superior vena cava → right atrium
 - D) Right ventricle → pulmonary trunk → pulmonary arteries → lung tissues → pulmonary veins → left atrium
- 41) Lymphatic vessels recover about _____ of the fluid filtered by capillaries.
- A) 15%
 - B) 85%
 - C) 5%
 - D) 50%
 - E) 25%

- 42) Lymph is similar to blood plasma, but very low in _____.
- A) sodium and potassium
 - B) metabolic waste
 - C) electrolytes
 - D) protein
 - E) carbon dioxide
- 43) Special lymphatic vessels, called lacteals, absorb dietary _____ that are not absorbed by the blood capillaries.
- A) vitamins
 - B) amino acids
 - C) water
 - D) lipids
 - E) glucose
- 44) Which of the following forces does *not* help lymph to flow?
- A) The thoracic pump
 - B) Rhythmic contractions of lymphatic vessels
 - C) Arterial pulsations squeezing lymphatic vessels
 - D) The skeletal muscle pump
 - E) The lymphatic node pump
- 45) _____ are the largest of the lymphatic vessels, and they empty into the _____.
- A) Collecting ducts; subclavian arteries
 - B) Collecting ducts; subclavian veins
 - C) Lymphatic trunks; subclavian veins
 - D) Lymphatic trunks; subclavian arteries
 - E) Lymphatic trunks; collecting ducts
- 46) Immune surveillance is a process in which _____ nonspecifically detect and destroy foreign cells and diseased host cells.
- A) natural killer (NK) cells
 - B) macrophages
 - C) reticular cells
 - D) dendritic cells
 - E) T lymphocytes (T cells)
- 47) Removal of the _____ would be more harmful to a one-year-old child than an adult.
- A) palatine tonsil
 - B) spleen
 - C) lymph node
 - D) appendix
 - E) thymus

- 48) _____ lacks the capacity to remember a pathogen or react differently to it in the future, whereas _____ utilizes memory cells to adapt to a given pathogen and ward it off more easily in the future.
- A) A natural killer cell; a macrophage
 - B) Adaptive immunity; innate immunity
 - C) Innate immunity; adaptive immunity
 - D) Innate immunity; cytotoxicity
- 49) _____ are found especially in the mucous membrane, standing guard against parasites and allergens.
- A) Basophils
 - B) Monocytes
 - C) Lymphocytes
 - D) Eosinophils
 - E) Neutrophils
- 50) A pyrogen is a substance that causes _____.
- A) opsonization
 - B) fever
 - C) complement fixation
 - D) cytolysis
 - E) inflammation
- 51) _____ are antimicrobial proteins.
- A) Prostaglandins
 - B) Interferons
 - C) Kinins
 - D) Bradykinins
 - E) Cytokines
- 52) One characteristic of the immune response is specificity. This means that _____.
- A) immunity is carried on by a specific group of cells of the immune system
 - B) immunity is carried on by a specific group of tissues of the immune system
 - C) immunity starts in specialized tissues in the body
 - D) immunity is directed against a particular pathogen
 - E) immunity starts in defined organs in the body
- 53) Vaccination stimulates _____ immunity.
- A) natural passive
 - B) innate
 - C) artificial active
 - D) natural active
 - E) artificial passive

- 54) T cells undergo positive selection in the thymus, which means they _____.
- A) die and macrophages phagocytize them
 - B) react against self antigens
 - C) develop surface antigen receptors
 - D) remain alive but unresponsive
 - E) multiply and form clones of identical T cells
- 55) The serum used for emergency treatment of snakebites stimulates _____ immunity.
- A) artificial active
 - B) artificial passive
 - C) natural active
 - D) natural passive