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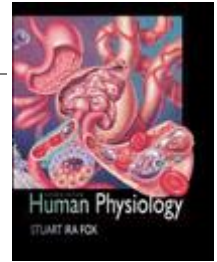
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Human Physiology, 7/e
 Stuart I Fox, Pierce College

Heart and Circulation



Results Reporter

Out of 58 questions, you answered 35 correctly, for a final grade of 60%.


35 correct (60%) 

23 incorrect (40%) 

0 unanswered (0%)

Please answer all questions

Your Results:

The correct answer for each question is indicated by a .

1 CORRECT

As blood flows through capillaries, the hydrostatic pressure of the blood forces some fluid out of the capillary walls and into the tissue spaces. (p. 366)

 (A) True
 (B) False

Feedback: Correct: The hydrostatic pressure in the capillaries filters fluid out of the capillaries into the tissue space. (p. 366)

2 CORRECT

Tissue fluid is the same as interstitial fluid; and may form lymph fluid that returns to the venous blood through lymphatic vessels. (p. 366)

 (A) True
 (B) False

Feedback: Correct: Interstitial (tissue) fluid forms lymph when it enters the lymphatic capillaries. (p. 366)

3 INCORRECT

The lymph nodes within the lymphatic system are considered part of the excretory system. (p. 366)

(A) True
 (B) False

Feedback: Incorrect: The lymph nodes are considered to be part of the immune system. (p. 366)

4 CORRECT

Normal blood pH ranges from 7.35 to 7.45. (p. 368)

 (A) True
 (B) False

Feedback: Correct: The pH of blood is very tightly controlled within a narrow range. (p. 368)

5 CORRECT

The most common and yet the smallest plasma protein is albumin, whose primary function is to draw water from the surrounding extracellular fluid (ECF) into the capillary plasma. (p. 365)

 (A) True
 (B) False

- 6 INCORRECT** **Feedback: Correct: Albumin is the smallest of the proteins but serves to aid as an osmotic agent. (p. 365)**
Alpha, beta, and gamma globulins are all plasma proteins produced by the liver; and they all function as antibodies in immune defense against foreign antigens. (p. 368)
 (A) True
 (B) False
- 7 CORRECT** **Feedback: Incorrect: The gamma globulins are produced by the immune system and are the only globulins to function as antibodies. (p. 368)**
Diapedesis is the movement like that of amoeba performed by leukocytes (white blood cells) as they pass through pores in the walls of the capillary to reach sites of infection. (p. 369)
 (A) True
 (B) False
- 8 INCORRECT** **Feedback: Correct: Neither the erythrocytes or platelets demonstrate diapedesis. (p. 369)**
The most abundant type of leukocyte, comprising 50% to 70% of all white blood cells in the blood, is the lymphocyte. (p. 370)
 (A) True
 (B) False
- 9 INCORRECT** **Feedback: Incorrect: Lymphocytes comprise only 25%-33% of leukocytes. (p. 370)**
Neutrophils are actually enlarged monocytes that produce and secrete large amounts of antibodies into the blood when activated by antigens. (p. 370)
 (A) True
 (B) False
- 10 CORRECT** **Feedback: Incorrect: Lymphocytes are enlarged monocytes that produce and secrete large amounts of antibodies into the blood upon activation. (p. 370)**
Leukopoiesis is stimulated by cytokines. (p. 371)
 (A) True
 (B) False
- 11 CORRECT** **Feedback: Correct: Some of the factors stimulating leucopoiesis are cytokines. (p. 371)**
Erythropoietin is a hormone secreted by the kidneys in response to lowered blood oxygen concentrations, stimulating the erythrocyte stem cells in the bone marrow to divide. (p. 371)
 (A) True
 (B) False
- 12 INCORRECT** **Feedback: Correct: The kidneys respond to decreased blood oxygen by releasing erythropoietin to stimulate erythrocyte production. (p. 371)**
Reticulocytes become normoblasts when the nucleus is expelled. (p. 372)
 (A) True
 (B) False
- 13 CORRECT** **Feedback: The normoblast loses the nucleus to become the reticulocyte. (p. 372)**
People who are blood type O must inherit the genotype ii and have both anti-A and anti-B antibodies present in their plasma. (p. 372)
 (A) True
 (B) False

- 14 CORRECT** **Feedback: Correct: Only two recessive alleles result in blood type O and since these cells lack antigens, the blood would contain both anti-A and anti-B antibodies. (p. 372)**
People who are blood type AB develop tolerance to both A and B antigens and thus do not produce either anti-A or anti-B antibodies. (p. 373)
 (A) True
 (B) False
- 15 INCORRECT** **Feedback: Correct: Since both A and B antigens are present on the surface of the blood cells the body does not produce antibodies against either A or B. (p. 373)**
A prostaglandin derivative that is believed to normally prevent platelets from sticking to each other and to the endothelial lining of healthy blood vessels is called thromboxane A₂. (p. 374)
 (A) True
 (B) False
- 16 CORRECT** **Feedback: Incorrect: Thromboxane A₂ stimulates platelet aggregation. (p. 374)**
The drug, aspirin, is an inhibitor of prostaglandin synthesis and would be expected to inhibit the platelet release reaction and thus slow the formation of a platelet plug. (p. 374)
 (A) True
 (B) False
- 17 CORRECT** **Feedback: Correct: Aspirin inhibits the ability of platelets to interact with each other by inhibiting the secretion of serotonin and thromboxane A₂ by the platelets. (p. 374)**
Plasma is actually serum that is lacking the clotting factor protein called fibrinogen. (p. 375)
 (A) True
 (B) False
- 18 CORRECT** **Feedback: Correct: During clotting, the fibrinogen is converted to fibrin to form the clot. (p. 375)**
When repairs have been made to the vessel, the activated plasma enzyme that digests fibrin and dissolves the clot is called plasmin. (p. 376)
 (A) True
 (B) False
- 19 INCORRECT** **Feedback: Correct: Clot dissolution requires plasma to digest the fibrin. (p. 376)**
Heparin is the specific anticoagulant that must be given to a patient for several days before it becomes effective because it competes directly with the action of vitamin K. (p. 376)
 (A) True
 (B) False
- 20 INCORRECT** **Feedback: Incorrect: Heparin inhibits thrombin activity and has no effect on vitamin D. (p. 376)**
In general, the kidneys regulate the carbon dioxide concentration of the blood and the lungs regulate the bicarbonate concentration of the blood. (p. 377)
 (A) True
 (B) False
- 21 CORRECT** **Feedback: Incorrect: The kidneys regulate the concentration of bicarbonate and the lungs regulate the concentration of carbon dioxide. (p. 377)**
Carbonic acid is referred to as a volatile acid because it can be converted into a gas and, thus, its blood concentration can be controlled by the lungs through proper ventilation. (p. 377)
 (A) True

B) False

Feedback: Correct: Any volatile acid can be exhaled through the lungs and carbonic acid is indeed a volatile acid. (p. 377)

22 INCORRECT

Uncontrolled diabetes mellitus is a clinical condition that can result in a metabolic alkalosis. (p. 378)

A) True

B) False

Feedback: Incorrect: Uncontrolled diabetes mellitus produces metabolic acidosis. (p. 378)

23 INCORRECT

The Henderson-Hasselbalch equation can be used to demonstrate that respiratory acidosis or alkalosis occurs when the bicarbonate concentrations in the blood are abnormal. (p. 378)

A) True

B) False

Feedback: Incorrect: Respiratory acidosis or alkalosis arise due to changes in the PCO₂ not changes in bicarbonate.

24 CORRECT

A muscular wall called a septum prevents the mixture of blood between the left and right sides of the heart. (p. 379)

A) True

B) False

Feedback: Correct: Septa separate both atria and ventricles within the heart. (p. 379)

25 CORRECT

The myocardial cells of the atria and ventricles are structurally and functionally separated from each other by a fibrous skeleton. Consequently, a special conducting tissue is needed to carry action potentials from the atria to the ventricles. (p. 379)

A) True

B) False

Feedback: Correct: The presence of the fibrous skeleton prevents action potentials from the atria from being transmitted to the ventricles, so a conducting system is required. (p. 379)

26 INCORRECT

The pressures in the left and right ventricle are equal during all stages of the cardiac cycle. (p. 382)

A) True

B) False

Feedback: Incorrect: The right ventricle develops a higher pressure than the left ventricle. (p. 382)

27 CORRECT

The valves between the chambers of the heart open and close due to changes in pressure that occur within the chambers on either side of the valves. (p. 383)

A) True

B) False

Feedback: Correct: When the pressure is greater in the chamber "above" (from where the blood will flow) the valve the valve will open and allow blood to flow and when the pressure is greater in the chamber "below" (to where the blood will flow) the valve the valve will close and prevent the backward flow of blood. (p. 383)

28 CORRECT

Normally, both atria contract at the same time, followed shortly by both ventricles contracting at the same time. (p. 381)

A) True

B) False

Feedback: Correct: Both atria and ventricles contract in unison, but the ventricles contract after the atria. (p. 381)

- 29 INCORRECT** The contraction of both atria is essential for life because it delivers about 80% of the total volume of blood to the ventricles for subsequent ejection. (p. 381)
 (A) True
 (B) False
Feedback: Incorrect: Atrial contraction only accounts for 20% of the total volume of end-diastolic volume so a lack of proper atrial contraction is not as life threatening as uncoordinated contraction of the ventricles. (p. 381)
- 30 CORRECT** During the isovolumetric contraction and isovolumetric relaxation phases, all four valves in the heart (both sets of AV and semilunar valves) are closed. (p. 382)
 (A) True
 (B) False
Feedback: Correct: Since there is no change in ventricular volume all heart valves must be closed. (p. 382)
- 31 CORRECT** During inhalation particularly, the first heart sound may be "split" into two separate sounds as the tricuspid and mitral heart valves close individually. (p. 383)
 (A) True
 (B) False
Feedback: Correct: Positioning the stethoscope to the right or left of the sternum at the 5th intercostals space allows these sounds to be individually identified. (p. 383)
- 32 CORRECT** A streptococcus bacterial throat infection in susceptible persons may lead to rheumatic fever and rheumatic endocarditis, resulting in damage to the heart valves and detectable murmurs. (p. 383)
 (A) True
 (B) False
Feedback: Correct: In rheumatic endocarditis the antibodies directed at the bacteria damage the heart valves and produce the heart murmurs. (p. 383)
- 33 INCORRECT** Simple septal defects are usually congenital, resulting in the flow of blood from the right side of the heart to the left side of the heart due to the higher pressure on the right side. (p. 383)
 (A) True
 (B) False
Feedback: Incorrect: The septal defects would allow blood to flow from the left side to the right side since the pressure is greater on the right side. (p. 383)
- 34 CORRECT** The fact that the heart of a frog will continue to beat outside of its body without communication by nerves or hormones, as long as the myocardial cells remain alive is called automaticity. (p. 385)
 (A) True
 (B) False
Feedback: Correct: The heart has specific pacemaker cells that allow it to beat in the absence of nervous inputs. (p. 385)
- 35 CORRECT** An ectopic pacemaker (or ectopic focus) is a cluster of myocardial cells located away from the SA node that take over and regulate the cardiac pace. (p. 386)
 (A) True
 (B) False
Feedback: Correct: Any pacemaker located outside the SA node is an ectopic pacemaker but since it is a pacemaker the ectopic pacemaker can regulate heart rate. (p. 386)

- 36 CORRECT** The rate of impulse conduction from the SA node is slowed through the AV node, causing a time delay before the ventricles are excited. (p. 386)
✔ **A) True**
 B) False
Feedback: Correct: The rate at which action potentials spread is different in the different parts of the conducting system allowing for complete atrial depolarization and contraction prior to ventricular contraction. (p. 386)
- 37 CORRECT** Myocardial contractions cannot be summed because of the long refractory periods. (p. 387)
✔ **A) True**
 B) False
Feedback: Correct: The long refractory period prevents stimulation prior to relaxation and therefore a lack of summation. (p. 387)
- 38 INCORRECT** Following contraction all of the Ca^{2+} is transported into the sarcoplasmic reticulum by active transport. (p. 384)
 A) True
✔ **B) False**
Feedback: Incorrect: Unlike skeletal muscle, most of the Ca^{2+} is transported out of the cell by an active transport protein that exchanges Ca^{2+} for Na^{+} . (p. 387)
- 39 CORRECT** The body is a good conductor of electricity because tissue fluids contain a high concentration of ions that move in response to changes in the membrane potentials, thereby creating current. (p. 387)
✔ **A) True**
 B) False
Feedback: Correct: The ability to conduct electricity is the basis of the electrocardiogram. (p. 387)
- 40 INCORRECT** Lead II bipolar leads records the cardiac electrical activity between the left arm and the left leg. (p. 389)
 A) True
✔ **B) False**
Feedback: Incorrect: Lead II records the electrical activity of the heart between the right arm and left leg. (p. 389)
- 41 INCORRECT** There are a total of six standard ECG leads that "view" the changing pattern of the heart's electrical activity from different angles. (p. 389)
 A) True
✔ **B) False**
Feedback: Incorrect: There are a total of 6 unipolar chest leads that record the electrical activity of the heart from different angles. (p. 389)
- 42 INCORRECT** The electrocardiogram (ECG) wave patterns designated P, QRS, and T are recordings of action potentials from specific regions in the heart. (p. 388)
 A) True
✔ **B) False**
Feedback: Incorrect: The waves are not action potentials but changes in electrical potential between regions of the heart. (p. 388)
- 43 CORRECT** Compared to larger arteries, smaller arteries and arterioles are less elastic and have a thicker layer of smooth muscle for their diameters. (p. 392)
✔ **A) True**
 B) False

- 44 INCORRECT** **Feedback: Correct: The larger the arteries have more elasticity to allow for the artery to expand and recoil due to pressure difference in the artery. (p. 392)**
Fenestrated capillaries are characterized by great distances between endothelial cells that can appear as little cavities or sinusoids in organs like the liver, spleen, and bone marrow. (p. 394)
 A) True
 B) False
Feedback: Incorrect: Fenestrated capillaries are characterized by wide intracellular pores. (p. 394)
- 45 CORRECT** **Feedback: Correct: The accumulation of blood due stretches the veins and produces varicose veins. (p. 395)**
Varicose veins result from extra blood accumulating in the veins of the legs over a long period of time so that the veins stretch and the valves can no longer prevent blood from flowing backwards. (p. 395)
 A) True
 B) False
Feedback: Correct: The accumulation of blood due stretches the veins and produces varicose veins. (p. 395)
- 46 CORRECT** **Feedback: Correct: These regions have an extremely high rate of atherosclerosis, stroke and heart disease due to the large number of individuals who have a diets or jobs that predispose them for these conditions. (p. 396)**
Atherosclerosis, accompanied by heart disease and stroke, is responsible for about 50% of the deaths in the United States, Europe, and Japan. (p. 396)
 A) True
 B) False
Feedback: Correct: These regions have an extremely high rate of atherosclerosis, stroke and heart disease due to the large number of individuals who have a diets or jobs that predispose them for these conditions. (p. 396)
- 47 CORRECT** **Feedback: Correct: The "fatty streaks", present in individuals as early as ten years of age, protrude into the tunica intima then progress at different rates in different individuals. (p. 396)**
"Fatty streaks" are gray-white areas that protrude from the tunica intima into the lumen of arteries and are present in children to a small degree in the aorta and coronary arteries by the age of ten. (p. 396)
 A) True
 B) False
Feedback: Correct: The "fatty streaks", present in individuals as early as ten years of age, protrude into the tunica intima then progress at different rates in different individuals. (p. 396)
- 48 INCORRECT** **Feedback: Incorrect: Lipids are engulfed by macrophages and become "foamy cells" . (p. 396)**
In the progression of atherosclerosis, neutrophils may engulf lipids passing through endothelium of arteries and become "foamy cells." (p. 396)
 A) True
 B) False
Feedback: Incorrect: Lipids are engulfed by macrophages and become "foamy cells" . (p. 396)
- 49 CORRECT** **Feedback: Correct: The lack of the LDL receptor prevents the receptor-mediated uptake of LDL cholesterol from the blood. (p. 396)**
Familiar hypercholesteremia results from a genetic defect that does not allow for proper removal of LDLs. (p. 396)
 A) True
 B) False
Feedback: Correct: The lack of the LDL receptor prevents the receptor-mediated uptake of LDL cholesterol from the blood. (p. 396)
- 50 INCORRECT** **Feedback: Incorrect: Increased plasma LDL-cholesterol increased the risk of developing atherosclerosis. (p. 398)**
Persons having higher plasma LDL-cholesterol concentrations and lower plasma HDL-cholesterol concentrations appear to have a lower risk of developing atherosclerosis. (p. 398)
 A) True
 B) False
Feedback: Incorrect: Increased plasma LDL-cholesterol increased the risk of developing atherosclerosis. (p. 398)

51 CORRECT

About 40%-50% of the calories eaten in a typical fast-food restaurant are derived from the ingestion of fat. (p. 398)

- (A) True
 (B) False

Feedback: Correct: Fast food is notoriously high in fat, containing up to 50% of the calories in a given meal. (p. 398)

52 CORRECT

Ischemia is an inadequate flow of blood (and an inadequate supply of oxygen) to any tissue. (p. 398)

- (A) True
 (B) False

Feedback: Correct: The lack of oxygen due to inadequate blood flow causes ischemia. (p. 398)

53 INCORRECT

A cardiac rate slower than 60 beats per minute indicates tachycardia; whereas a rate faster than 100 beats per minute is described as bradycardia. (p. 399)

- (A) True
 (B) False

Feedback: Incorrect: Bradycardia is a cardiac rate less than 60 beats per minute while tachycardia is a cardiac rate faster than 100 beats per minute. (p. 399)

54 INCORRECT

Because of the importance of the atrial contraction to the filling of the ventricles with blood, fibrillation of the atria with electrical circus rhythms recycling through the myocardium is life threatening. (p. 399)

- (A) True
 (B) False

Feedback: Incorrect: Circus rhythms in the atria is not life threatening because the ventricles only receive 20% of end-diastolic volume due to ventricular contraction. (p. 399)

55 CORRECT

In the condition known as first-degree AV node block, damage to the AV node causes slowing of impulse conduction through the heart and the P-R interval exceeds 0.20 seconds in duration. (p. 400)

- (A) True
 (B) False

Feedback: Correct: A first-degree AV block is not life threatening but causes the P-R interval to be extended due to slowed impulse conduction. (p. 400)

56 CORRECT

Like veins, the walls of lymphatic vessels have the same three layers and contain valves to prevent the backward flow of lymph. (p. 401)

- (A) True
 (B) False

Feedback: Correct: The valves in the lymphatic vessels function like the valves in the veins and prevent the back flow of lymph.. (p. 401)

57 CORRECT

Lymph is formed by the filtration of plasma from blood capillaries that flows between tissues cells as interstitial fluid and later returns via lymphatic vessels to the blood, completing the cycle. (p. 401)

- (A) True
 (B) False

Feedback: Correct: The fluid that enters the interstitial spaces from the blood then enters the lymphatic vessels to form lymph and the lymph is returned to the blood at the thoracic duct. (p. 401)

58 INCORRECT Lymph node germinal centers are the sites of pathogen removal by resident phagocytes in the lymphatic system. (p. 402)

A) True

B) False

Feedback: Incorrect: The germinal centers of the lymph node are responsible for the production of lymphocytes. (p. 402)

Routing Information

Date: Wed Jan 02 05:11:35 EST 2013

My name:

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