

Name _____

Heart

1. The atrial reflex (Bainbridge reflex) involves adjustments in heart rate in response to
 - A. the influx of Ca^{2+}
 - B. venous return.
 - C. acetylcholine released by parasympathetic neurons.
 - D. autonomic tone.
2. Physicians are interested in cardiac output because it provides useful information about
 - A. the shape of the QRS complex.
 - B. ventricular diastole.
 - C. how efficient the ventricles are over a period of time.
 - D. hormonal release at the SA node.

Use the following information to answer Questions 3-4 below.

A person's heart rate was 60 beats per minute and her stroke volume was 80 mL per beat. As she starts exercising, her heart rate starts increasing to 130 beats per minute and her stroke volume changes to 70 mL per beat.

3. What happened to her cardiac output as she started exercising?
 - A. It nearly doubled.
 - B. It decreased almost in half.
 - C. It didn't change.
 - D. It increased slightly.
 - E. It decreased slightly.
4. Why did her stroke volume decrease as she started exercising?
 - A. Her peripheral organs, such as her digestive organs, didn't need as much blood, so less blood was pumped out.
 - B. Because the heart rate increased, she didn't need to pump as much blood out of her heart.
 - C. Because the heart rate increased, there was less time for ventricular filling to occur (ventricular diastole), so there was less blood to pump out.
 - D. Her end-systolic volume was decreased, so her stroke volume was less.
 - E. All of the above are correct.
5. When arterial pressure is increased,
 - A. afterload decreases.
 - B. end-systolic volume increases.
 - C. stroke volume increases.
 - D. end-diastolic volume decreases.

Circulation

6. If a patent (open) foramen ovale remains after birth,
 - A. blood is pushed from the left atrium to the right atrium due to high systemic pressure.
 - B. blood is inadequately oxygenated because it keeps by-passing the lungs.
 - C. the left ventricle will enlarge because it has to work harder to provide adequate blood flow to the body.
 - D. A and B
 - E. A and C

7. In which of the following organs would you find continuous capillaries?
 - A. liver
 - B. kidneys
 - C. stomach
 - D. brain

8. The O₂ concentration in a tissue bed decreases. A response would be
 - A. to vasoconstrict the blood vessels perfusing that tissue bed.
 - B. for the baroreceptor output to increase.
 - C. for blood vessels supplying that tissue bed to dilate.
 - D. to decrease respiratory rate.

9. When arterial pressure decreases,
 - A. net filtration pressure decreases.
 - B. capillary hydrostatic pressure increases.
 - C. more fluid will be forced out of the blood capillaries.
 - D. blood colloid osmotic pressure decreases.

10. A fetus receives its nutrients and oxygen from
 - A. its own digestive system and lungs, just like a newborn.
 - B. swallowing amniotic fluid that has received nutrients and oxygen by diffusion from the mother's blood, and then processing those nutrients and oxygen in its digestive system and lungs.
 - C. diffusion of nutrients and oxygen from the mother's blood across the placenta into the fetus's blood.
 - D. the uterine cavity (womb) where it is housed for nine months.

11. The unidirectional flow of blood in venules and medium-sized veins is maintained by
 - A. the muscular walls of the veins.
 - B. pressure from the left ventricle.
 - C. the high pressure in the venous system.
 - D. the presence of valves in the veins.

12. One would expect a higher peripheral resistance
 - A. when blood has to travel past heart valves.
 - B. when there are less proteins in blood.
 - C. when the diameter of the blood vessel is greater.
 - D. when the blood travels through a shorter vessel, by-passing an area of the body with a longer vessel perfusing it.

13. A person's blood pressure reading is 120/80.
- A. His systolic pressure is 80.
 - B. His pulse is 40.
 - C. His pulse pressure is 40.
 - D. His mean arterial pressure is 40.
14. All of the following will help correct a decreased blood pressure EXCEPT
- A. erythropoietin release.
 - B. decreased baroreceptor output, causing an increase in cardiac output.
 - C. vasodilation.
 - D. release of antidiuretic hormone.
15. The hepatic portal circulation
- A. ensures hepatocytes (liver cells) receive oxygenated blood.
 - B. collects the nutrient-rich blood from the digestive organs and sends it to the liver for metabolism, storage, or excretion.
 - C. takes blood from the inferior vena cava and shuttles it through the liver for nutrient absorption.
 - D. is important for controlling the blood flow through the digestive organs.
16. With dehydration,
- A. net filtration pressure increases.
 - B. capillary hydrostatic pressure increases.
 - C. blood colloid osmotic pressure increases.
 - D. All of the above will occur.
17. When the elastic component of the tunics cannot withstand high arterial pressure,
- A. an aneurysm results.
 - B. arteriosclerosis results.
 - C. atherosclerosis results.
 - D. focal calcification results.

Lymphatics

18. In order for specific T cell immunity to function,
- A. the antigen must be presented by an MHC protein.
 - B. the antibody must be presented by an MHC protein.
 - C. antibodies must be produced in great numbers.
 - D. suppressor T cells must become active first.
19. A person suffering from an autoimmune disease has partially lost which property of immunity?
- A. Specificity
 - B. Versatility.
 - C. Memory.
 - D. Tolerance.
20. Cells that attack foreign material in cells or foreign cells are
- A. B cells.
 - B. antibodies.
 - C. cytotoxic T cells.
 - D. helper T cells.

21. Phagocytosis and increased lymphocyte production
- A. occurs in lymph nodes and the spleen in the presence of abnormal cells or infection.
 - B. will only occur in the lymph nodes when they need to filter the lymph.
 - C. will only occur in the spleen when it needs to filter the blood.
 - D. are examples of nonspecific defenses.
22. When an antibody attaches to an antigen,
- A. the binding sites on the antigen can be blocked, preventing it from attaching to and invading a target cell.
 - B. the complex can stimulate basophils and mast cells to cause an inflammatory response.
 - C. the complex can become so large that it precipitates out of the plasma, thereby rendering the antigens ineffective.
 - D. All of the above can happen.
23. Lymphatic capillaries
- A. receive blood from blood capillaries.
 - B. originate as blind pockets near blood capillaries.
 - C. collect approximately 3.6 L of interstitial fluid a day.
 - D. All of the above are correct.
 - E. B and C are correct.
24. Activated B cells produce plasma cells that are specialized because they
- A. produce helper T cells.
 - B. produce NK cells.
 - C. produce memory B cells.
 - D. produce and secrete antibodies.
25. Of the following, which one includes only nonspecific defenses?
- A. T and B-cell activation, complement, inflammation.
 - B. Antibodies, integumentary system, fever.
 - C. Fever, complement, macrophages.
 - D. NK cells, T cells, B cells.
26. Extra credit: A person suffering from HIV (the virus that causes AIDS) will exhibit
- A. a loss of specific immunity, with non-specific defenses as the only remaining actions against invaders.
 - B. a lack of suppression of T and B cell activity by suppressor T cells.
 - C. less activation of B cells.
 - D. less coding for CD8 markers.