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University of Ottawa

ANP 1105D

Midterm #2

Date: March 9th, 2017

Duration: 50 minutes

Instructor: Balwant Tuana

INSTRUCTIONS:

1. 50 multiple choice questions (0.5 mark/1 correct answer per question). Total possible mark = 25.
2. Please do not forget to put **your course code (ANP 1105D), your student number, your surname** (last name) **and the initials, on the first page of the scantron sheet!!!**
3. Please write **the exam version #** (indicated at the bottom left of this page) **on the right top corner of the scantron sheet!!!**
4. Please answer the multiple choice questions on the scantron sheet that is provided.
5. Make sure this exam is complete. This exam contains 9 pages.
6. The excuse of missing a page will not be accepted after the examination.

Good luck!!!!

1. Asha has a platelet count of 100,000 per microliter of blood. Which of the following statements is true about Asha's platelets count?
   a. It indicates thrombocytopenia
   b. It indicates thrombocytosis
   c. It is normal
   d. None of the above

2. Select the correct statement regarding RBCs:
   a. the main site of aged and damaged RBCs disposal is the liver
   b. red bone marrow is the main site of RBCs disposal in adults
   c. each RBC contains about 25 million hemoglobin molecules
   d. CO_2 combines with the globin part of hemoglobin

3. Which of the following is true about the RBCs?
   a. Mature RBCs divide in response to hypoxia
   b. RBCs colour depends on the shape of RBCs
   c. Production of RBCs stops at high altitudes
   d. Iron, vitamin B12 and folic acid deficiency leads to anemia

4. Which of the following is true?
   a. Athletes can develop anemia due to abnormally low ferritin levels
   b. Thalassemia is a disorder of blood clotting
   c. Lysis of blood clots is initiated 2-3 months after blood clot formation
   d. Excess dietary iron is stored in platelets

5. Which of the following statements is true?
   a. Platelets do not have nuclei
   b. RBC's occupy about 15% of a total blood volume
   c. The number of RBC's is higher in females than in males
   d. Reticulocytes are old RBCs
   e. Absorption of iron from the plant foods is inhibited by vitamin C

6. Sickle-cell anemia:
   a. is a disorder transmitted by snake bites
   b. is associated with changes in shape of RBCs
   c. is particularly common in people of Greek and Italian origin
   d. is associated with lack of globin production

7. Which of the following is incorrect regarding erythropoietin:
   a. is a glycoprotein
   b. can be produced by the kidney
   c. increased by hypoxia
   d. increased by RBC destruction
   e. inhibited at high altitude

8. Which of these hematocrits indicates polycythemia?
    a. 35-40%
    b. 40-45%
    c. 55%
    d. None of the above

9. Which of the following cause ONLY the extrinsic pathway of blood coagulation to be followed?
    a. sticking of platelets to roughened blood vessel walls
    b. activation of a proenzyme exposed to collagen
    c. release of heparin by the liver
    d. the conversion of prothrombin to thrombin
    e. the release of tissue factor by damaged tissue cells

10. The waste product bilirubin is produced from:
    a. globin chains of hemoglobin
    b. portions of heme molecules that contain iron
    c. portions of heme molecules that do not contain iron
    d. iron found in hemoglobin molecules
    e. abnormal proteins found in red blood cells

11. Which of the following chemicals is an enzyme that converts fibrinogen to fibrin?
    a. Heparin
    b. Thrombin
    c. Prothrombin
    d. coagulation factor VI
    e. tissue factor

12. All of the following are properties of erythrocytes EXCEPT:
    a. Biconcavity
    b. reversible deformability
    c. presence of hemoglobin in cytoplasm
    d. presence of many mitochondria in cytoplasm

13. Which of these statements about plasmin is TRUE?
    a. It is involved in the intrinsic blood clotting system
    b. It is involved in the extrinsic blood clotting system
    c. It functions in fibrinolysis
    d. It is a procoagulant

14. Which of the following statements is true?

    a. Hemophilia is equally common in men and women
    b. Lack of the coagulation factor VIII is the main cause of thalassemia
    c. Plasmin converts soluble fibrinogen into insoluble fibrin
    d. Polycythemia may be initiated by injection of erythropoietin

15. The function of the intercalated discs in cardiac muscle is to:
    a. provide the mechanism by which all of the cardiac muscle cells can behave as syncytium
    b. separate sarcomers from each other
    c. generate the appropriate neurotransmitters to regulate heart rate
    d. store ATP

16. Oxygenated blood flows to the _____ through the_____:

a. right atrium;	superior vena cava
b. left atrium;	pulmonary veins
c. right atrium;	pulmonary artery
d. left atrium;	coronary veins

17. If the length of the absolute refractory period in cardiac muscle cells was the same as it is for skeletal muscle cells _____.
    a. it would be much longer before cardiac cells could respond to a second stimulation
    b. contractions would last as long as the refractory period
    c. tetanic contractions might occur, which would stop the heart's pumping action
    d. it would be less than 1/2 ms

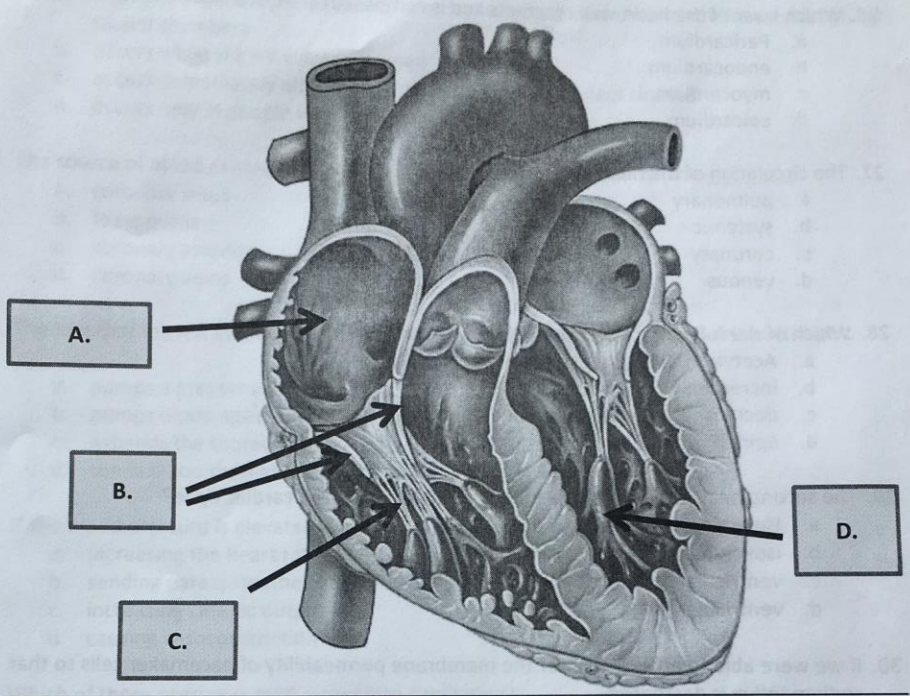
18. Which of the following lists the elements of the heart's conduction system in the correct order?
    a. SA node, AV bundle, bundle branches, AV node, Purkinje fibres
    b. AV node, AV bundle, SA node, bundle branches, Purkinje fibres
    c. Purkinje fibers, AV bundle, bundle branches, AV node, SA node
    d. SA node, AV node, AV bundle, bundle branches, Purkinje fibres

19. In the myogenic (autorhythmic) cardiac cells:
    a. the resting potential is less negative than in the contractile cardiac muscle cells
    b. there is a stable resting membrane potential
    c. depolarization of the action potential is caused by an efflux of sodium ions
    d. depolarization is caused by an influx of potassium ions

20. Which blood type is called the universal donor?
    a. A
    b. B
    c. AB
    d. O
    e. O (minus)

21. An individual with type B blood can donate to:
    a. only type B recipients
    b. only type O recipients
    c. only type AB recipients
    d. both type B and type O recipients
    e. both type B and type AB recipients

22. Which of the following (A, B, C or D) represents the papillary muscle?



23. The heart`s pacemaker is:
    a. atrioventricular node
    b. Purkinje fibers
    c. sinoatrial node
    d. atrioventricular bundle

24. Which valve is located between the right atrium and right ventricle:
    a. mitral valve
    b. pulmonary semilunar valve
    c. aortic valve
    d. tricuspid valve

25. The T wave on an ECG represents:
    a. atrial repolarization
    b. ventricle repolarization
    c. atrial depolarization
    d. ventricle depolarization

26. Which layer of the heart wall contracts and is composed of muscle cells:
    a. Pericardium
    b. endocardium
    c. myocardium
    d. epicardium

27. The circulation of the heart is referred to as:
    a. pulmonary
    b. systemic
    c. coronary
    d. venous

28. Which of the following will increase heart rate:
    a. Acetylcholine
    b. increased vagus nerve activity
    c. decreased sympathetic drive
    d. epinephrine

29. The second heart sound is heard during which phase of the cardiac cycle?
    a. isovolumetric relaxation
    b. isovolumetric contraction
    c. ventricular ejection
    d. ventricular filling

30. If we were able to artificially alter the membrane permeability of pacemaker cells so that sodium influx is decreased, _____.
    a. threshold is reached more quickly and heart rate would increase
    b. potassium channels compensate and no change in heart rate would occur
    c. heart rate would decrease
    d. tetanic contraction would occur due to the short absolute refractory period of cardiac muscle

31. Select the correct statement about cardiac output.
    a. A slow heart rate decreases end diastolic volume, stroke volume, and force of contraction.
    b. Increased venous return will result in increased end diastolic volume
    c. If a semilunar valve were partially obstructed, the end systolic volume in the affected ventricle would be decreased.
    d. Stroke volume increases if end diastolic volume decreases.

32. During contraction of heart muscle cells _____.
    a. the action potential is initiated by voltage-gated slow calcium channels
    b. some calcium enters the cell from the extracellular space and triggers the release of larger amounts of calcium from intracellular stores
    c. the action potential is prevented from spreading from cell to cell by gap junctions
    d. calcium is prevented from entering cardiac fibers that have been stimulated

33. Isovolumetric contraction _____.
    a. refers to the short period during ventricular systole when the ventricles are completely closed chambers
    b. occurs while the AV valves are open
    c. occurs immediately after the aortic and pulmonary valves close
    d. occurs only in people with heart valve defects

34. The source of blood carried to capillaries in the myocardium would be the _____.
    a. coronary sinus
    b. fossa ovalis
    c. coronary arteries
    d. coronary veins

35. The fact that the left ventricle of the heart is thicker than the right ventricle reveals that it _____.
    a. pumps a greater volume of blood
    b. pumps blood against a greater resistance
    c. expands the thoracic cage
    d. sends blood through a smaller valve

36. If the blood pressure is elevated, the cardiovascular centers would compensate by
    a. increasing the heart rate
    b. sending parasympathetic signals to the heart
    c. increasing cardiac output
    d. causing vasoconstriction

37. Which of these pressures pulls water into capillaries?
    a. blood hydrostatic pressure
    b. blood colloid osmotic pressure
    c. tissue hydrostatic pressure
    d. tissue colloid osmotic pressure

38. Which of these factors would increase peripheral resistance?
    a. decreased blood viscosity
    b. decreased hematocrit
    c. decreased vessel radius
    d. decreased blood volume

39. Pulse pressure is calculated by
    a. adding diastolic pressure to systolic pressure
    b. subtracting diastolic pressure from systolic pressure
    c. adding the diastolic and systolic pressure, then dividing by 2
    d. adding one-third of the difference between the diastolic and the systolic pressure to the diastolic pressure.

40. The largest arteries are the
    a. conducting (elastic) arteries
    b. distributing (muscular) arteries
    c. metarterioles
    d. arterioles

41. All of the following statements are TRUE about arteries EXCEPT _____.
    a. arteries are under higher pressure than veins
    b. arteries have one-way valves
    c. arterial walls have a thicker layer of smooth muscle than found in venous walls
    d. arteries carry blood away from the heart

42. Homeostatic regulation of the cardiovascular system is designed to maintain _____.
    a. constant blood volume
    b. constant arterial blood pressure
    c. constant cardiac output
    d. constant venous blood pressure

43. Which of the following statements concerning the nervous regulation of the circulation is correct?
    a. The baroreceptors are mainly responsible for the long-term regulation of systemic blood pressure.
    b. If the arterial pressure suddenly falls the baroreceptor reflex increases the heart rate.
    c. The baroreceptors are found in the aortic and carotid bodies
    d. The coronary blood flow is regulated by the cardiac volume receptors.

44. Which of the following statements concerning the control of the vasculature is correct?
    a. Autoregulation refers to the nervous control of the blood vessels
    b. Reactive hyperemia is due to vasodilatation caused by the accumulation of metabolites during a period of exercise.
    c. Parasympathetic vasodilator fibers innervate the blood vessels of the exocrine glands of the gastro-intestinal tract.
    d. The diameter of the arterioles is entirely regulated by the sympathetic nervous system.

45. Venous return would be increased by
    a. dilation of the veins
    b. loss of the venous valves
    c. increased skeletal muscle activity
    d. decreased respiratory rate

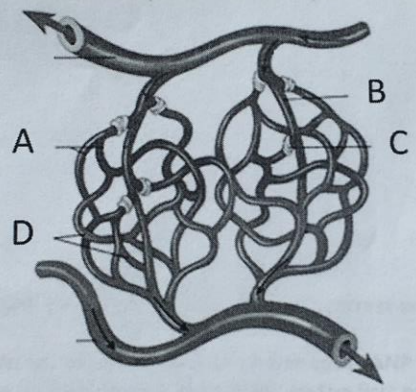
46. When taking blood pressure by the auscultatory method, the stethoscope is used to
    a. measure the pressure of the blood pushing against the wall of the artery.
    b. listen for the turbulent blood flow in the artery
    c. measure the speed at which the blood is flowing through the artery
    d. measure the pressure of air in the cuff

47. Adenosine is a:
    a. Powerful vasoconstrictor
    b. Powerful vasodilator
    c. Weak effector of tone
    d. Is not produced during exercise.

48. Which of the following is not a cause of bleeding disorders?
    a. thrombocytopenia, a condition of decreased circulating platelets
    b. excess secretion of platelet-derived growth factor (PDGF)
    c. a defect in the clotting cascade
    d. vitamin K deficiency

49. Damage to the _____ is referred to as heart block.
    a. SA node
    b. AV valves
    c. AV bundle
    d. AV node

50. A thoroughfare channel provides a bypass for a capillary bed is shown in A, B, C or D?



Midterm 2 - Answer Key - V1		Midterm 2 - Answer Key - V2		Midterm 2 - Answer Key - V3	
1	A	1	A	1	A
2	D	2	B	2	B
3	D	3	C	3	B
4	A	4	D	4	B
5	A	5	A	5	A
6	B	6	E	6	C
7	E	7	E	7	C
8	C	8	A	8	D
9	E	9	C	9	C
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11	B	11	B	11	B
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29	A	29	B	29	B
30	C	30	A	30	A
31	B	31	C	31	B
32	B	32	C	32	C
33	A	33	C	33	D

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22	D	22	A	22	A
23	C	23	A	23	C
24	D	24	B	24	B
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