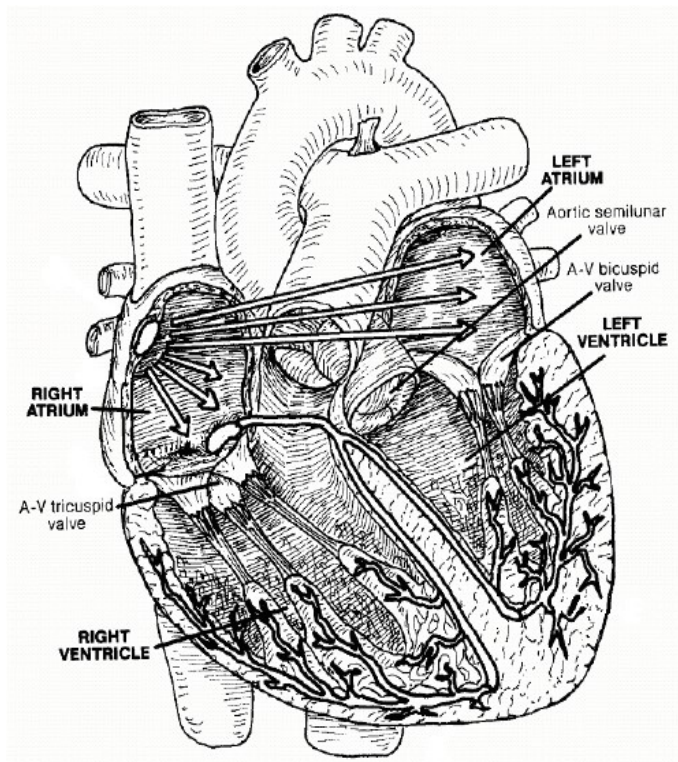


Name: _____ Hour: _____ Date: _____

Cardiovascular System Study Packet (Conduction, Blood Circuits, Cardiac Output, Cardiac Cycle)

1. Label the parts of heart's intrinsic conduction system.



2. Match the description with the correct conduction system component. Use the key provided to indicate your answers.

A. SA node

B. AV node

C. AV bundle & branches

D. Purkinje fibers

_____ Provides the stimulus for contraction of the ventricles

_____ Sinoatrial node

_____ Located in the lower atrial septum at the junction of atria and ventricles

_____ Located within the interventricular septum

_____ Located in the right atrium just inferior to the entrance of the superior vena cava

_____ Located within the walls of the ventricles

_____ Atrioventricular node

_____ Pacemaker

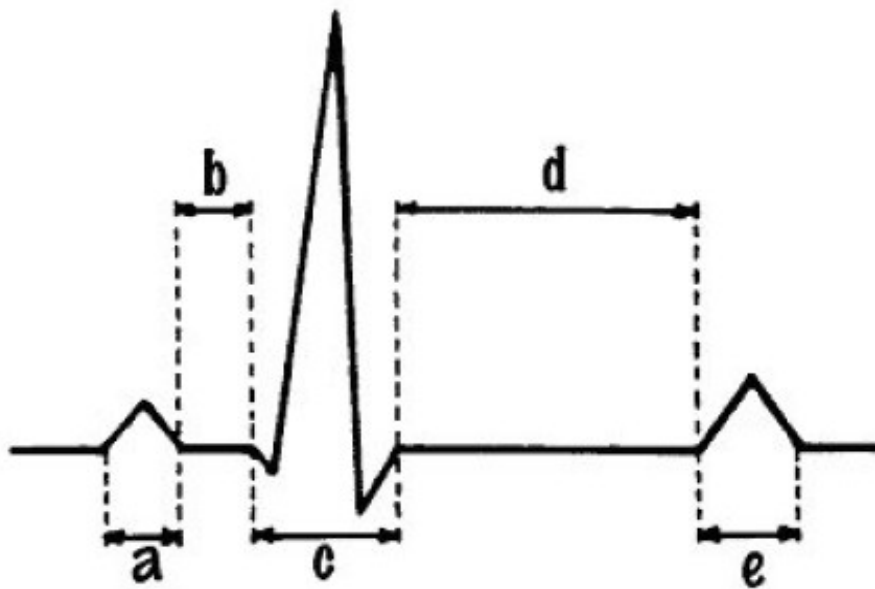
_____ Sets the rate of depolarization for heart as whole

_____ Delays conduction of the impulse

3. Listed below are the events that cause the heart to contract. Put the steps in the correct order.

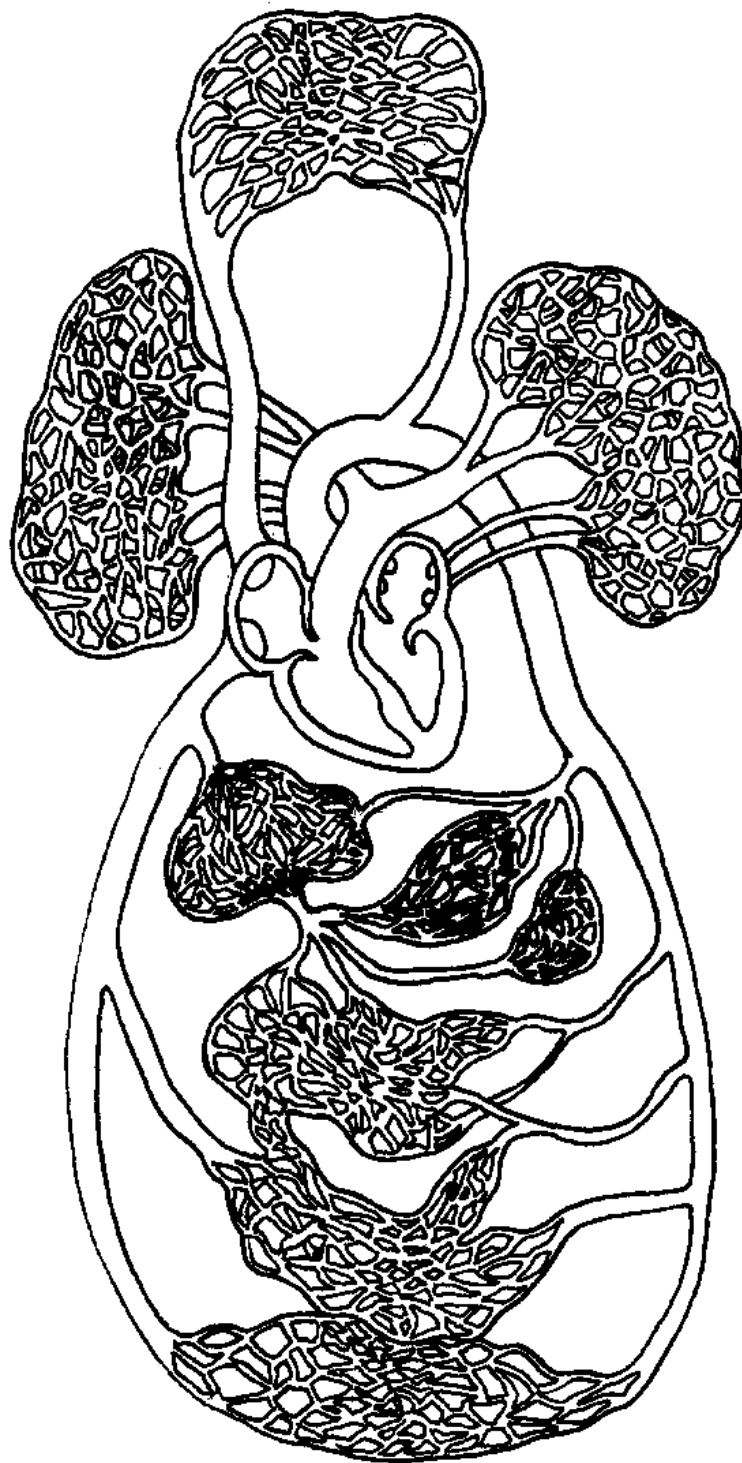
- _____ Depolarization of the SA node
- _____ Impulse passes along the Purkinje fibers
- _____ Impulse spreads throughout the atria
- _____ AV node receives impulse
- _____ Impulse passes through the AV bundle
- _____ AV node delays conduction of the impulse for approximately 0.1 sec.
- _____ Atria contract
- _____ Impulse passes through the bundle branches
- _____ Ventricles contract

4. Match the ECG component and event with the correct letter from the diagram.



- | | |
|------------------------------------|--|
| _____ T wave | _____ Causes contraction of atria |
| _____ P wave | _____ Causes contraction of ventricles |
| _____ QRS complex | _____ Ventricles empty |
| _____ Depolarization of ventricles | _____ Ventricles fill |
| _____ Repolarization of ventricles | _____ Atria empty |
| _____ Depolarization of atria | _____ Atria fill |

5. Color the diagram of the circulatory system below. Use DARK RED/MAROON to represent deoxygenated blood and LIGHT RED/RED-ORANGE to represent oxygenated blood.



9/4/98

6. Answer the following multiple choice questions regarding the circulation of blood through the cardiovascular system.

- _____ 1. Blood returning from the systemic circuit first enters the
- a. right atrium
 - b. right ventricle
 - c. left atrium
 - d. left ventricle
- _____ 2. Blood returning from the lungs enters the
- a. right atrium
 - b. right ventricle
 - c. left atrium
 - d. left ventricle
- _____ 3. The right ventricle pumps blood to the
- a. left ventricle
 - b. lungs
 - c. left atrium
 - d. systemic circuit
- _____ 4. The left ventricle pumps blood to the
- a. lungs
 - b. right ventricle
 - c. right ventricle
 - d. systemic circuit
- _____ 5. The right atrium receives blood from
- a. pulmonary veins
 - b. aorta
 - c. inferior vena cava
 - d. pulmonary trunk
- _____ 6. The atrioventricular valve located on the right side of the heart is the
- a. tricuspid valve
 - b. mitral valve
 - c. bicuspid valve
 - d. aortic semilunar valve
- _____ 7. Blood leaving the right ventricle enters the
- a. aorta
 - b. pulmonary artery
 - c. pulmonary veins
 - d. inferior vena cava

- ___ 8. The pulmonary semilunar valve guards the entrance to the
- aorta
 - pulmonary veins
 - pulmonary trunk
 - left ventricle
- ___ 9. The bicuspid or mitral valve is located
- in the opening of the aorta
 - in the opening of the pulmonary trunk
 - where the vena cavae join the right atrium
 - between the left atrium and left ventricle
- ___ 10. The entrance to the ascending aorta is guarded by
- an atrioventricular valve
 - the bicuspid valve
 - a semilunar valve
 - the tricuspid valve
- ___ 11. The function of an atrium is
- to collect blood
 - to pump blood to the lungs
 - to pump blood into the systemic circuit
 - to pump blood to the heart muscle
 - all of the above
- ___ 12. The following is a list of vessels and structures that are associated with the heart.
- right atrium
 - left atrium
 - right ventricle
 - left ventricle
 - vena cavae
 - aorta
 - pulmonary trunk
 - pulmonary veins

What is the correct order for the flow of blood entering from the systemic circulation?

- 1,2,7,8,3,4,6,5
- 5,1,3,7,8,2,4,6
- 1,7,3,8,2,4,6,5
- 5,3,1,7,8,4,2,6

- ___ 13. The left and right pulmonary arteries carry blood to the
- heart
 - intestines
 - lungs
 - brain
- ___ 14. The left and right pulmonary veins carry blood to the
- heart
 - intestines
 - lungs
 - liver

7. Heart Valves. The opening and closing of the valves results from the changes in pressure within the heart. Match the event with the correct cause.

_____ Pressure inside the ventricles is higher than the pressure inside the atria

_____ Pressure inside the larger arteries is higher than the pressure inside the ventricles

_____ Pressure inside the ventricles is lower than the pressure inside the atria

_____ Pressure inside the large arteries is lower than the pressure inside the ventricles

A. AV valves close

B. AV valves open

C. Semilunar valves open

D. Semilunar valves close

8. Heart Sounds. Identify the heart sound (**Lub** or **Dup**) described in each of the following.

_____ First heart sound

_____ Shorter, sharper sound

_____ Second heart sound

_____ Associated with closure of the AV valves

_____ Longer, softer sound

_____ Associated with closure of the semilunar valves

9. Cardiac Output

Define cardiac output. _____

Complete the following equation.

Cardiac Output = _____ X _____

What is the average heart rate for an adult at rest? _____

What does "bpm" represent? _____

Define stroke volume. _____

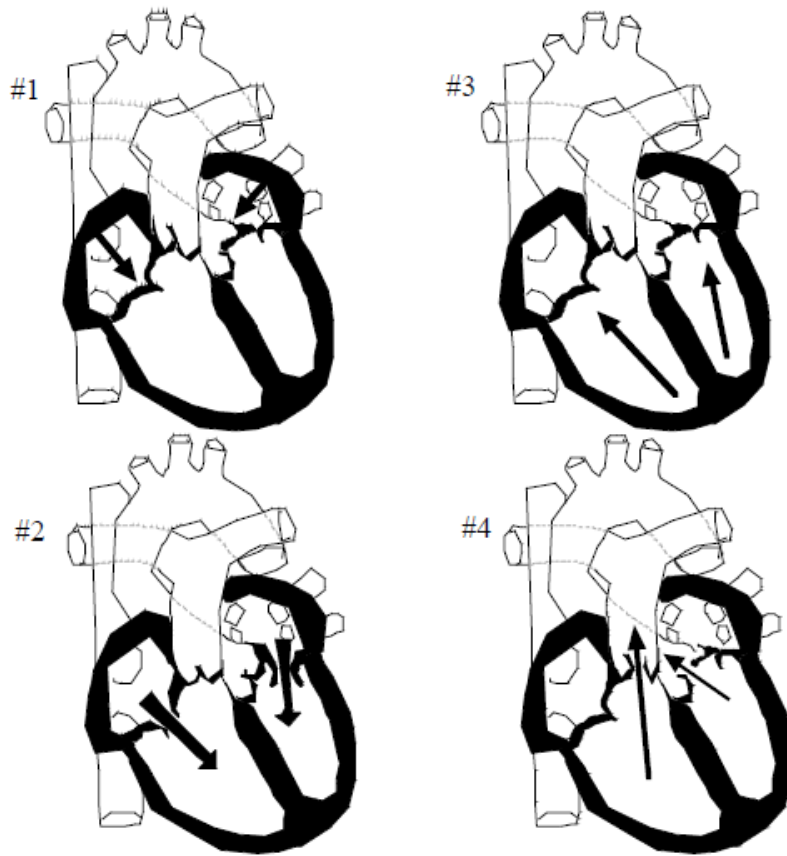
An increase in venous blood returning to the heart will _____ heart rate.

In general, more blood entering the ventricles causes an _____ in ventricular contraction

resulting in an _____ in cardiac output. This is referred to as _____

_____.

10. The Stages of a Heartbeat: In less than one second, the human heart goes through four stages of activity. Use the pictures to describe the different stages of a heartbeat. Include the actions of the valves, the names of the heart structures and vessels, and contraction of the chambers. Bonus for the heart sounds!



Stage 1: _____

Stage 2: _____

Stage 3: _____

Stage 4: _____

