

6. Figure 11-4 is a diagram of the frontal section of the heart. Follow the instructions below to complete this exercise.

First, draw arrows to indicate the direction of blood flow through the heart. Draw the pathway of the oxygen-rich blood with red arrows, and trace the pathway of oxygen-poor blood with blue arrows.

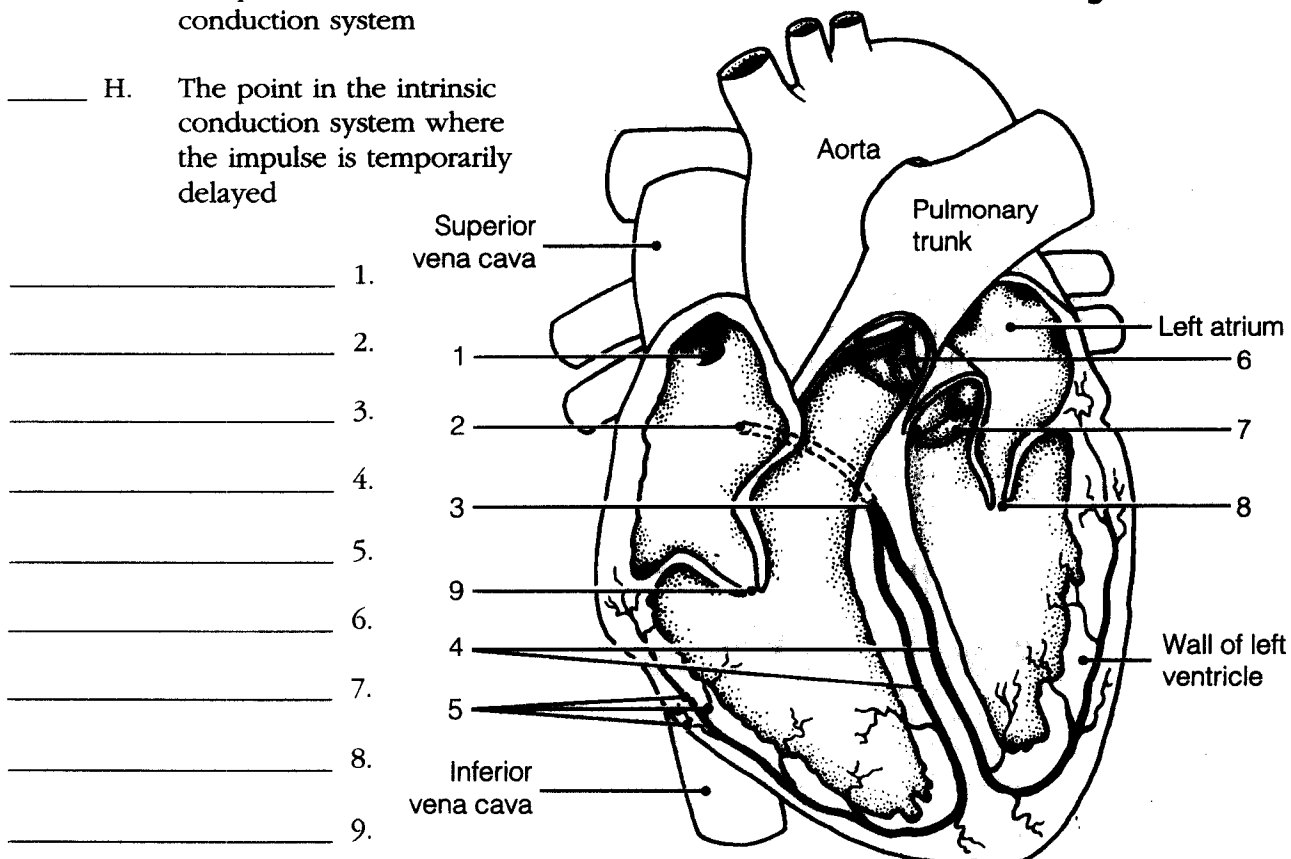
Second, identify each of the elements of the intrinsic conduction system (numbers 1-5 on the figure) by inserting the appropriate terms in the blanks left of the figure. Then, indicate with green arrows the pathway that impulses take through this system.

Third, correctly identify each of the heart valves (numbers 6-9 on the figure) by inserting the appropriate terms in the blanks left of the figure, and draw in and identify by name the cordlike structures that anchor the flaps of the atrioventricular (AV) valves.

Fourth, use the numbers from the figure to identify the structures described below. Place the numbers in the lettered answer blanks.

- \_\_\_\_\_ A. \_\_\_\_\_ B. Prevent backflow into the ventricles when the heart is relaxed
- \_\_\_\_\_ C. \_\_\_\_\_ D. Prevent backflow into the atria when the ventricles are contracting
- \_\_\_\_\_ E. AV valve with three flaps
- \_\_\_\_\_ F. AV valve with two flaps
- \_\_\_\_\_ G. The pacemaker of the intrinsic conduction system
- \_\_\_\_\_ H. The point in the intrinsic conduction system where the impulse is temporarily delayed

**Figure 11-4**



7. Match the terms provided in Column B with the statements given in Column A. Place the correct term or letter response in the answer blanks.

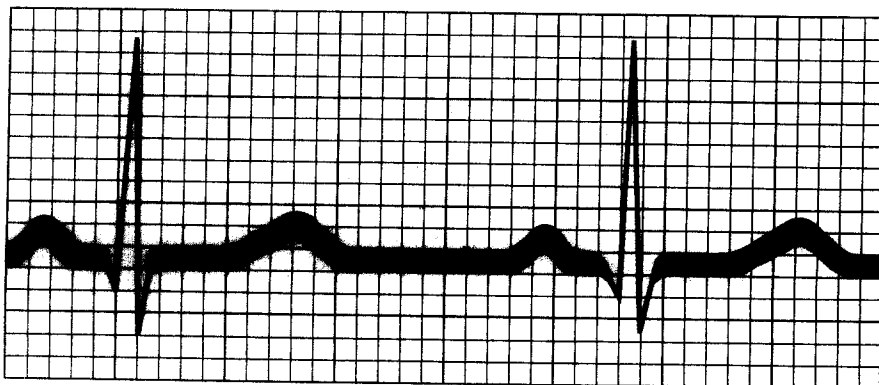
**Column A**

- \_\_\_\_\_ 1. A recording of the electrical activity of the heart
- \_\_\_\_\_ 2. The period during which the atria are depolarizing
- \_\_\_\_\_ 3. The period during which the ventricles are repolarizing
- \_\_\_\_\_ 4. The period during which the ventricles are depolarizing, which precedes their contraction
- \_\_\_\_\_ 5. An abnormally slow heartbeat, that is, below 60 beats per minute
- \_\_\_\_\_ 6. A condition in which the heart is uncoordinated and useless as a pump
- \_\_\_\_\_ 7. An abnormally rapid heartbeat, that is, over 100 beats per minute
- \_\_\_\_\_ 8. Damage to the AV node, totally or partially releasing the ventricles from the control of the sinoatrial (SA) node
- \_\_\_\_\_ 9. Chest pain, resulting from ischemia of the myocardium

**Column B**

- A. Angina pectoris
- B. Bradycardia
- C. Electrocardiogram
- D. Fibrillation
- E. Heart block
- F. P wave
- G. QRS wave
- H. T wave
- I. Tachycardia

8. A portion of an electrocardiogram is shown in Figure 11-5. On the figure identify the QRS complex, the P wave, and the T wave. Then, using a red pencil, bracket a portion of the recording equivalent to the length of one cardiac cycle. Using a blue pencil, bracket a portion of the recording in which the *ventricles* would be in diastole.



**Figure 11-5**