

Cardiac Conduction



Directions:

- a. Click the "Contents" button,
- b. Open the *Cardiovascular System* File,
- c. Click *Animations*,
- d. Click *Cardiac Muscle*

1. What is the function of the *Conduction System*? _____

2. Cardiac cells are *connective* and *autorhythmic*. What does this mean? _____

3. Cells from different parts of the heart's conduction system have different natural rhythms. What are the average beats per minute at each of the following parts of the heart?

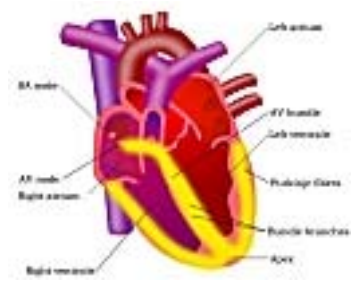
a. Sinoatrial Node (SA) _____

b. Atrioventricular Node (AV) _____

c. Ventricles _____

4. What is the function of the SA Node? Describe how this happens. _____

5. The AV node starts a series of events that leads to ventricular contraction. Describe this series of events.



6. Describe the contraction signal timing as it passes from the SA Node to the AV Node, through the AV Bundle, to the apex, on to the base of the heart.

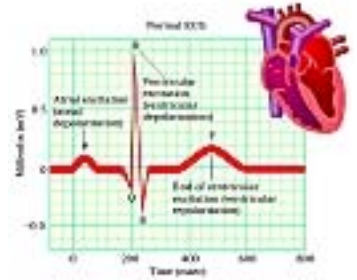


7. What happens at each of the following points of a normal ECG?

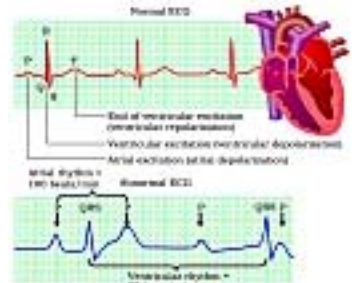
P - _____

QRS - _____

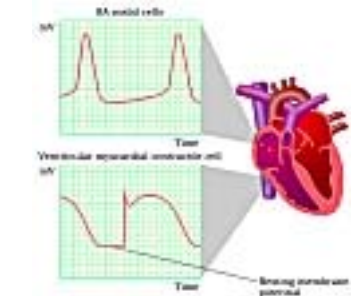
T - _____



8. Contrast a healthy heart ECG with an abnormal one in which ventricular excitation is independent of atrial excitation (P waves).



9. Contrast the resting potential of typical myocardial cells with that of SA node cells.



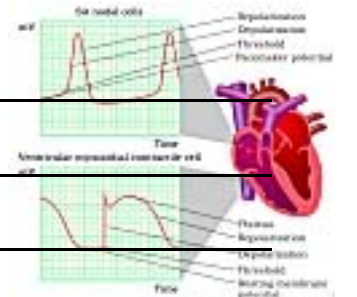
10. Identify each of the following parts of an action potential on graphs of SA Nodal cells and ventricular cells. Explain what is happening during each stage.

SA Node Pacemaker Potential _____

SA Node Threshold _____

SA Node Depolarization _____

SA Node Repolarization _____



(events continued next page)

Ventricular Resting Potential _____

Ventricular Threshold _____

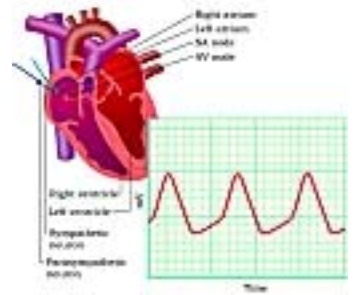
Ventricular Depolarization _____

Ventricular Plateau _____

Ventricular Repolarization _____

11. What two factors combine to determine heart rate? _____

12. a. Contrast the affects of acetylcholine and norepinephrine on heart rate.



b. Which is secreted by parasympathetic neurons and which is secreted by sympathetic neurons?
