1. The ability to spontaneously depolarize, without nervous control:
   a. stenosis  
   b. stroke volume  
   c. diastole  
   d. myogenicity  
   e. systole

2. The ability to spontaneously depolarize, without nervous control, at regular intervals:
   a. autorhythmicity  
   b. stroke volume  
   c. diastole  
   d. systole  
   e. myogenicity

3. The normal "pacemaker" of the heart is the:
   a. brain  
   b. ventricles  
   c. Purkinje fibers  
   d. atrio-ventricular node  
   e. sino-atrial node

4. Which of the following conduction sequences is in correct order:
   a. AV node->internodal pathways->bundle of His->Purkinje fibers->SA node-bundle branches  
   b. SA node->AV node->Purkinje fibers->bundle of His->bundle branches->internodal pathways  
   c. bundle of His->bundle branches->Purkinje fibers->AV node->inter-nodal pathways->SA node  
   d. SA node->internodal pathways->AV node->bundle or His->bundle branches->Purkinje fibers  
   e. Purkinje fibers->bundle of His->bundle branches->internodal pathways->SA node->AV node

5. In discussing the conducting fibers of the sino-atrial node, atrio-ventricular node, bundle of His, bundle branches and Purkinje fibers, the following may be stated (regarding one, or all of them):
   a. composed of modified cardiac muscle  
   b. spontaneous rhythmicity and conductivity more highly developed than the rest of the heart  
   c. initiates and transmits a depolarization wave with a rapid rate which passes through all parts of the myocardium  
   d. can be regulated by the autonomic (visceral) nervous system  
   e. all of the above

6. If the conducted depolarizations from the sino-atrial node are blocked, the ventricular depolarizations are initiated in the:
   a. atrio-ventricular node, which will exhibit rhythmic depolarizations, but at a lower rate  
   b. heart stops functioning because no depolarizations reach the ventricles  
   c. cardiac muscle of the atrial walls itself begin spontaneous contraction and conduction  
   d. interatrial septum  
   e. none of the above
7. What is the effect of a heart block:
   a. prevents the atria from contracting
   b. blocks the atrio-ventricular conducting system, thus abolishing the synchronization of atria and ventricles
   c. plugs up the coronary arteries, depriving the heart muscle of oxygen and nutrients, causing local cell death
   d. would only operate in stress conditions
   e. causes the ventricles to become the overall heart "pacemaker"

8. A heart block is due to:
   a. failure of the atrio-ventricular node to receive and/or to transmit depolarizations
   b. failure of the sino-atrial node to receive stimuli
   c. failure of the atrio-ventricular node to stimulate atrial muscle
   d. lack of blood supply to the liver
   e. permanent closure of a heart valve

9. The atrio-ventricular node's primary function is:
   a. conduction of a depolarization wave through the atria
   b. conduction of a depolarization wave through the ventricles
   c. delay conduction from the atria to the ventricles, to allow atrial conduction to be completed
   d. to act as the heart's overall pacemaker
   e. unknown

10. Which of the following has the fastest conduction speed:
    a. sino-atrial node
    b. internodal pathways
    c. atrio-ventricular node
    d. Purkinje fibers
    e. unmodified cardiac muscle fibers

11. The fastest conduction speed is within the:
    a. sino-atrial node
    b. internodal pathways
    c. atrio-ventricular node
    d. ventricular conducting system
    e. moderator band

12. Why is the ventricular conduction system's speed so fast:
    a. there is much more myocardium to stimulate to contract
    b. depolarization is less effective
    c. gravity has more effect, since this is beneath the atria
    d. simply because the atrial conduction is first
    e. it is not faster [trick question]

13. Why does ventricular depolarization and resulting contraction begin in the apex and then progress towards the base:
    a. the heart is positioned more to the left of the body's midline
    b. the ventricular conducting system is more extensive than the atrial system
    c. this prolongs its action, to prevent overlap with atrial systole
    d. this produces a milking action which squeezes the maximum amount of blood into the aorta and pulmonary trunk
    e. there is no particular logic
14. Sequential contraction throughout the heart, from cell-to-cell conduction of depolarization, is from which feature:
   a. all-or-none response
   b. myogenicity
   c. syncytial fibers
   d. independent tone
   e. autorhythmicity

15. Which of the following would be the most reasonable time for complete spread of the depolarization wave from the sino-atrial node to the final ventricular contractile fibers:
   a. 0.09 second
   b. 0.22 second
   c. 1.50 seconds
   d. 4.50 seconds
   e. 0.50 second

16. What is the function of the atrio-ventricular node:
   a. produces a strategic delay from atria to ventricles, permitting ventricular filling to be completed
   b. allows one-way conduction from atria to ventricles
   c. permits communication between atria and ventricular conducting system
   d. can act as a secondary pacemaker if a blockage occurs with the internodal pathways
   e. all of the above

17. A strategic delay in conduction from the atria to the ventricles is accomplished by:
   a. internodal pathways
   b. junctional fibers of the A-V node
   c. bundle of His
   d. trabeculae carneae
   e. S-A node

18. The heart can not be tetanized because:
   a. it is myogenic
   b. it is autorhythmic
   c. of the long refractory period of cardiac muscle cells
   d. its tone is independent of the nervous system
   e. all of the above

19. The cardiac cycle is:
   a. the conduction phenomena
   b. shown by the EKG
   c. that the more the heart is stretched the more forceful will be its contractions
   d. the alternate contraction and relaxation of the atria and the ventricles
   e. none of the above

20. Of the following, the longest should be:
   a. atrial systole
   b. ventricular systole
   c. atrial diastole
   d. ventricular diastole
   e. none of the above, since they are all of the same duration
21. Which of the following do not occur simultaneously:
   a. atrial systole and ventricular systole
   b. atrial diastole and ventricular diastole
   c. atrial diastole and ventricular systole
   d. atrial systole and ventricular diastole
   e. left ventricular systole and right ventricular systole

22. Cardiac muscle cells form an interconnected mass, permitting cell-to-cell conduction; this situation is termed:
   a. syncytium
   b. all-or-none
   c. tone
   d. myogenicity
   e. autorhythmicity

23. Which of the following occur simultaneously:
   a. right atrial systole and left ventricular systole
   b. right atrial diastole and right ventricular diastole
   c. right atrial systole and right ventricular systole
   d. left atrial systole and left ventricular systole
   e. left atrial systole and right ventricular systole

24. What event is responsible for most ventricular filling:
   a. vibration of the moderator band
   b. sucking action from ventricular diastole
   c. pressure from atrial systole
   d. atrial diastole
   e. none of the above

25. Atrial systole is most important for:
   a. filling the ventricles with the greatest volume of blood
   b. preventing backflow through the A-V valves
   c. preventing backflow through the semilunar valves
   d. producing the necessary amount of ventricular stretching during its filling
   e. all of the above