**Question 1**

With respect to the cardiac cycle and the ECG:

Select one:

a. The T wave is synchronous with the 3rd heart sound

b. The ST segment represents the absolute refractory period of the ventricles

c. The start of systole is marked by the P wave

d. The PR interval represents atrial relaxation

Answer B. Ganong 23rd Edition pg 493 figure 30-4

**Question 2**

Vagal stimulation of the SA node:

Select one:

a. Leads to raised intracellular cAMP

b. Leads to increased conductance of calcium into the cell

c. Decreases the slope of the prepotential of the SA node

d. Leads to increased conductance of potassium into the cell

Answer C. Ganong 23rd Edition pg 491 figure 30-3

**Question 3**

In second degree heart block:

Select one:

a. The ventricular rate is lower than the atrial rate

b. The ventricular ECG complexes are distorted

c. Cardiac output is increased

d. There is a high incidence of ventricular tachycardia

Answer A. Ganong 23rd Edition pg 497 "not all atrial impulses are conducted to the ventricles"

**Question 4**

The action potential of cardiac pacemaker cells:

Select one:

a. Exhibits a prepotential initially caused by decreased potassium efflux

b. Is not affected by calcium current

c. Shows a decreased prepotential slope with sympathetic stimulation

d. Is mainly due to magnesium influx

Answer A. Ganong 23rd Edition pg 491

**Question 5**

Which of the following normally has a prominent prepotential?

Select one:

a. Sinoatrial node

b. Bundle of His

c. Purkinje fibres

d. Atrial muscle cells

Answer A. Ganong 23rd Edition pg 491 "prepotentials are normally prominent only in the SA and AV nodes"

**Question 6**

With respect to the ECG:

Select one:

a. Electrical flow towards a limb lead such as III signifying the start of ventricular depolarisation, is represented by the Q-wave

b. Left bundle branch block results in right axis deviation

c. Bipolar lead III connects the +ve terminal of the L arm to the –ve lead of the L leg

d. Current of injury is from damaged cardiac muscle to normal surrounding areas

Answer D. Ganong 23rd Edition pg 502 table 30-3

**Question 7**

Regarding the conduction system of the heart:

Select one:

a. Right bundle branch fibres divide into an anterior and posterior fascicle

b. SA nodal fibres have fast conduction velocity

c. Action potentials from the SA node are generated from sodium influx

d. Stimulation of the right vagus nerve mainly inhibits the SA node

Answer D. Correct. Ganong 23rd Edition pg 490 "right vagus is distributed mainly to the SA node"

**Question 8**

Action potential initiation in the SA and AV node results from:

Select one:

a. Sodium influx

b. Potassium influx

c. Sodium and calcium influx

d. Calcium influx

Answer D. Ganong 23rd Edition pg 491 "the action potentials in the SA and AV nodes are largely due to calcium"

**Question 9**

The rate of pacemaker cells in the heart can be slowed by all EXCEPT:

Select one:

a. Increased phase 4 depolarization slope

b. More positive threshold potential

c. Prolongation of the action potential

d. Reduction of the slope of the diastolic depolarization

Answer A. Ganong 23rd Edition pg 491-492

**Question 10**

Opening of which contributes to the repolarization phase of ventricular muscle fibres?

Select one:

a. Potassium channels

b. Chloride channels

c. Sodium channels

d. Calcium channels

Answer A. Ganong 23rd Edition pg 491 figure 30-2