**Question 1**

Ventricular filling occurs:

Select one:

a. Approximately 70 % by passive means in diastole

b. Mostly by contraction of the atria

c. Mostly during the period of isovolumetric ventricular relaxation

d. At an even rate throughout diastole

Answer A. Ganong 23rd Edition pg 507

**Question 2**

The ejection fraction represents:

Select one:

a. % of atrial volume ejected into the ventricles with atrial systole

b. % of blood remaining in the ventricle following systole

c. Aortic blood flow

d. % of ventricular volume ejected with each stroke

Answer D. Ganong 23rd Edition pg 508

**Question 3**

Regarding the cardiac cycle:

Select one:

a. The V wave is caused by the bulging of the tricuspid valve into the atria

b. Isovolumetric ventricular relaxation occurs after closure of the aortic and pulmonary valves

c. The end diastolic ventricular volume is 180 ml (approximately)

d. The third heart sound is due to rapid ventricular emptying

Answer B. Ganong 23rd Edition pg 509 figure 31-1

**Question 4**

Which is INCORRECT regarding cardiac output?

Select one:

a. The output per minute per square metre of body surface is the cardiac index

b. Heterometric regulation is changing contractility of the heart independent of length

c. Cardiac output is not affected by sleep

d. Resting cardiac output correlates with body surface area

Answer B. Ganong 23rd Edition pg 515 "regulation of cardiac output as a result of changes in cardiac muscle fibre length"

**Question 5**

With respect to cardiac output:

Select one:

a. In the elderly, body weight decreases with age and the cardiac index increases

b. Cardiac index is expressed as cardiac output per kilogram per minute

c. Chronic demand for an increased output results in myocardial hyperplasia

d. None of the above

Answer D.

**Question 6**

The C wave of the JVP corresponds to:

Select one:

a. The aortic valve snapping shut

b. Rise in atrial pressure prior to the tricuspid valve opening

c. Bulging of the tricuspid valve into the atrium

d. Atrial systole

Answer C. Ganong 23rd Edition pg 512

**Question 7**

Which of the following is NOT true?

Select one:

a. The mitral valve is between the left atrium and the left ventricle

b. The second heart sound occurs after the T wave of the ECG

c. The first heart sound occurs immediately after the P wave of the ECG

d. The second heart sound occurs at the closure of the aortic and pulmonary valves

Answer C. Ganong 23rd Edition pg 514

**Question 8**

Regarding isometric ventricular relaxation:

Select one:

a. It ends when the AV valves open

b. Intraventricular pressure remains constant during this phase

c. It occurs early in systole

d. It occurs late in diastole

Answer A. Ganong 23rd Edition pg 509 figure 31-1

**Question 9**

Which is true regarding cardiac output and blood flow?

Select one:

a. The peak pressure in the left ventricle is just before the aortic valve closes

b. Decreased ventricular filling increases cardiac output

c. Blood flow into the ventricles is greatest as soon as the mitral and tricuspid valves close

d. The mitral valve opens at the same time as the aortic valve closes

Answer A. Ganong 23rd Edition pg 511 figure 31-1

**Question 10**

Which factor normally decreases cardiac output?

Select one:

a. Standing

b. Stronger atrial contractions

c. Pregnancy

d. Increased pumping action of skeletal muscle

Answer A. Ganong 23rd Edition pg 514 table 31-3