

**1-Throughout the isometric relaxation of the ventricles:**

- A. A.V. valves are opened, semilunar valves are opened;
- B. A.V. valves are closed, semilunar valves are opened;
- C. A.V. valves are opened, semilunar valves are closed;
- D. A.V. valves are closed, semilunar valves closed;
- E. none of the above.

2-During atrial systole of the cardiac cycle:

A. The ventricular volume is constant.

B. Over 70% of ventricular filling occurs.

C. The A-V valves are closed.

**D.** The aortic valve is closed.

**3-At which point in the cardiac cycle are the A-V valves open?**

- a) Rapid filling
- b) Isometric contraction
- c) Rapid ejection
- d) Isometric relaxation
- e) None of the above

#### 4-During the isometric contraction phase:

- A. A.V. valves are opened, semilunar valves are opened;
- B. A.V. valves are closed, semilunar valves are opened;
- C. A.V. valves are opened, semilunar valves are closed;
- D.** A.V. valves are closed, semilunar valves closed;
- E. none of the above.

5-During the isometric contraction phase of cardiac cycle, the ventricular volume:

- A. Decreases
- B. Increases
- C. Remain unchanged
- D. Decreases as the intraventricular pressure increases
- E. Increase due to increase of blood flow.

## 6-During the ventricular filling:

- A. A.V. valves are opened, semilunar valves are opened;
- B. A.V. valves are closed, semilunar valves are opened;
- C.** A.V. valves are opened, semilunar valves are closed;
- D. A.V. valves are closed, semilunar valves are closed;
- E. none of the above.

## 7-The isometric contraction phase is:

- A. a part of the ejection phase of ventricular contraction;
- B.** a part of the contraction ventricular phase;
- C. a part of ventricular diastole;
- D. the rapid filling phase of ventricular diastole;
- E. the slow filling phase of ventricular diastole.

## 8-During cardiac cycle in normal human:

- A. The left ventricular eject more blood per beat than the right ventricles
- B.** The mitral valve opens when the left atrial pressure exceeds the left ventricular pressure
- C. The left atrium contracts more earier than the right atrium
- D. During rapid ejection phase, the left ventricular pressure is below the aortic pressure



9-Regarding the cardiac cycle, all are true

EXCEPT:

A. The mitral valve closes because the pressure in the left ventricle exceeds that in the left atrium

B. The tricuspid valve opens when the left atrial pressure exceeds the left ventricular pressure

C. During ventricular systole, the pressure in the left ventricle is above the aortic pressure.

D. During ventricular diastole, the pressure in the left ventricle is below the atrial pressure.

**10-During the ventricular ejection**  
**phases of cardiac cycle:**

A. Ventricular volume is constant.

B. Atrial contraction continues.

**C.** A-V valves are closed.

D. All valves are closed.

## L1-Ventricular rapid filling phase:

- A. Depends mainly on contraction of ventricles.
- B. Begins during isometric contraction phase
- C. Ventricular volume will gradually increase
- D. Will not occur unless atrial pressure is higher than atmospheric pressure

# 12-60% of ventricular filling

## occurs in:

- A. Isometric relaxation
- B. Maximum ejection
- C. Rapid filling
- D. Slow filling

**13-Regarding Isometric contraction phase, choose the correct statement:**

- A.** Ventricular pressure increases
- B. Aortic pressure increases
- C. A-V valves are opened
- D. Semilunar valves are opened.

## 14-Isometric relaxation is defined as:

- a. Relaxation of both atria
- b. Relaxation of both atria with all valves open
- c. Relaxation of LV with mitral and aortic valve closed
- d. Relaxation of LV with mitral and aortic valve open

*Relaxation for the ventricle,  
- all valves are closed*

**15-Which of the following events occur during rapid ejection phase?**

- A. The atria are relaxed, the ventricles are filling passively, the atrioventricular valves are open.
- B. The atria contract, the ventricles are relaxed, the atrioventricular valves are open.
- C. The ventricles are starting to contract, the atrioventricular valves are closed, the semilunar valves are closed.
- D. The atria are relaxed, the ventricles are starting to relax, the atrioventricular valves are opening, the semilunar valves are closing.
- E. Both the 2 atria and 2 ventricles are contracted & the atrioventricular valves are opening, the semilunar valves are closing.

**16-Which of the following events occur at the same time:**

- A. opening of the AV valves and onset of the rapid ejection phase.
- B. closure of the aortic valve and onset of rapid filling phase.
- C. opening of the AV valves and onset of atrial contraction.
- D. closure of the pulmonary valve and onset of isometric contraction phase.
- E. none of the above is correct.



# Answers

|              |       |             |       |
|--------------|-------|-------------|-------|
| 1-D          | 2. D  | 3. A        | 4.D   |
| <b>5-C</b>   | 6-C   | 7-B         | 8-B   |
| 9-B          | 10- C | 11- C       | 12- C |
| <b>13 -A</b> | 14-C  | <u>15-C</u> | 16-E  |