

MULTIPLE CHOICE

AE ANATOMY AND PHYSIOLOGY - PRACTICE SET - ANSWER KEY

PROPOSED FOR REVIEW - questions are the author's verbatim Q&A; distractors are auto-selected from other answers in the same bank and must be checked by a subject-matter reviewer (a distractor could coincidentally be correct). Not authoritative assessment content.

1. Which structure represents the embryologic remnant of the foramen ovale in the adult heart?

- A. Crista terminalis
- B. Eustachian valve
- C. Coronary sinus ostium
- D. Fossa ovalis**

2. A 60-year-old patient has a left ventricular end-diastolic volume of 120 mL and an end-systolic volume of 60 mL. What is the calculated ejection fraction?

- A. 40 percent
- B. 50 percent**
- C. 60 percent
- D. 30 percent

3. The moderator band is found in which cardiac chamber?

- A. Left ventricle
- B. Right ventricle**
- C. Right atrium
- D. Left atrium

4. Cardiac output is best defined as which of the following?

- A. Stroke volume multiplied by heart rate**
- B. Ejection fraction multiplied by heart rate
- C. End-diastolic volume multiplied by heart rate
- D. Stroke volume divided by heart rate

5. The left anterior descending coronary artery primarily supplies which region of the left ventricle?

- A. Lateral wall
- B. Anterior wall and anterior interventricular septum**
- C. Right ventricular free wall
- D. Inferior wall and posterior septum

6. During ventricular diastole, which of the following is true?

- A. The mitral and tricuspid valves are open and the aortic and pulmonic valves are closed**
- B. All four valves are closed
- C. All four valves are open
- D. The mitral and tricuspid valves are closed and the aortic and pulmonic valves are open

7. Which structure is described as a fibrous ring that provides attachment for the valve leaflets and electrically insulates the atria from the ventricles?

- A. Endocardium
- B. Sinus of Valsalva
- C. Pericardium
- D. Cardiac skeleton (annulus fibrosus)**

8. Which feature most reliably identifies the morphologic right ventricle on echocardiography?

- A. Presence of a moderator band and more apically displaced atrioventricular valve**
- B. Direct connection to the pulmonary veins
- C. Smooth-walled chamber with thicker free wall than the systemic ventricle
- D. Two papillary muscles and smooth interventricular surface

9. How many papillary muscles are typically present in the normal left ventricle?

- A. Four
- B. Three
- C. One
- D. Two**

10. The chordae tendineae of the mitral valve attach the leaflet edges to which structures?

- A. Trabeculae carneae
- B. Papillary muscles**
- C. Moderator band
- D. Pectinate muscles

11. In most patients, the posterior descending artery (PDA) arises from which vessel, defining right coronary dominance?

- A. Right coronary artery**
- B. Left main coronary artery
- C. Left circumflex artery
- D. Left anterior descending artery

12. Which structure normally separates the right atrium from the left atrium?

- A. Interventricular septum
- B. Interatrial septum**
- C. Crista terminalis
- D. Moderator band

13. Which best defines stroke volume?

- A. Cardiac output divided by stroke volume
- B. End-systolic volume minus end-diastolic volume
- C. End-diastolic volume minus end-systolic volume**
- D. End-diastolic volume divided by heart rate

14. Which cardiac chamber has the thickest myocardial wall in a normal adult heart?

- A. Right ventricle
- B. Left ventricle**
- C. Left atrium
- D. Right atrium

15. Which valves close to produce the first heart sound (S1)?

- A. Mitral and tricuspid valves**
- B. Aortic and pulmonic valves
- C. Tricuspid and pulmonic valves
- D. Mitral and aortic valves

16. The second heart sound (S2) is produced primarily by closure of which valves?

- A. Aortic and mitral valves
- B. Pulmonic and tricuspid valves
- C. Mitral and tricuspid valves
- D. Aortic and pulmonic valves**

17. Which of the following best describes afterload for the left ventricle?

- A. The resistance and wall stress the ventricle must overcome to eject blood**
- B. The compliance of the ventricular myocardium
- C. The fraction of end-diastolic volume ejected per beat
- D. The volume of blood in the ventricle at end-diastole

18. Which physiologic change most directly increases left ventricular afterload?

- A. An increase in myocardial contractility
- B. An increase in systemic vascular resistance**
- C. An increase in venous return
- D. A decrease in heart rate

19. During which phase of the cardiac cycle are all four cardiac valves closed and ventricular volume remains constant while pressure rises sharply?

- A. Isovolumic relaxation
- B. Rapid ventricular ejection
- C. Isovolumic contraction**
- D. Rapid ventricular filling

20. Which statement best characterizes the relative pressures and wall thicknesses of the right and left ventricles in a healthy adult?

- A. The right ventricle generates higher systolic pressure and has a thicker wall than the left ventricle
- B. The left ventricle generates higher systolic pressure and has a thicker wall than the right ventricle**
- C. Both ventricles generate equal systolic pressures and have equal wall thicknesses
- D. The left ventricle has lower systolic pressure but a thicker wall than the right ventricle

21. Which leaflet configuration describes the normal tricuspid valve?

- A. Left and right cusps with a commissural leaflet
- B. Anterior, posterior, and septal leaflets**
- C. Right, left, and non-coronary cusps
- D. Anterior and posterior leaflets only

22. Which of the following best describes preload?

- A. The resistance the ventricle must overcome to eject blood
- B. The intrinsic contractile state of the myocardium
- C. The volume of blood remaining in the ventricle after systole
- D. The ventricular wall stress or volume at end-diastole**

23. Which of the following will most directly reduce cardiac output, assuming all other variables remain constant?

- A. A fall in stroke volume**
- B. A rise in heart rate
- C. An increase in preload within physiologic limits
- D. An increase in contractility

24. The pericardium is composed of which two main layers?

- A. Fibrous pericardium and serous pericardium**
- B. Tunica intima and tunica media
- C. Endocardium and myocardium
- D. Visceral pleura and parietal pleura

25. Which great vessel arises directly from the right ventricle?

- A. Superior vena cava
- B. Pulmonary vein
- C. Ascending aorta
- D. Main pulmonary artery**