

MULTIPLE CHOICE

AE CONGENITAL AND OTHER - 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. A patent ductus arteriosus connects which two structures?

- A. Ascending aorta and the right pulmonary artery
- B. Left atrium and the left pulmonary vein
- C. Superior vena cava and the right atrium
- D. Descending thoracic aorta and the main or left pulmonary artery**

2. Which TEE view is best for evaluating the left atrial appendage for thrombus?

- A. Transgastric short axis view at the mid-papillary level
- B. Mid-esophageal two-chamber view sweeping through approximately 60 to 90 degrees**
- C. Deep transgastric long axis view
- D. Upper esophageal aortic arch long axis view

3. Which transthoracic view is generally considered best for imaging the atrial septum and identifying an atrial septal defect?

- A. Apical two-chamber view
- B. Subcostal four-chamber view**
- C. Parasternal short axis at the papillary muscle level
- D. Suprasternal long axis view

4. Which echocardiographic feature defines Ebstein anomaly?

- A. Apical displacement of the septal tricuspid leaflet with atrialization of the right ventricle**
- B. Cleft in the anterior mitral leaflet with primum ASD
- C. Subvalvular pulmonary stenosis with infundibular hypertrophy
- D. Apical displacement of the anterior mitral leaflet with atrialization of the left ventricle

5. Eisenmenger syndrome refers to which of the following?

- A. Acute reversal of aortic regurgitation following valve replacement
- B. Reversal of a left-to-right shunt to right-to-left due to severe pulmonary hypertension**
- C. Subaortic membrane causing dynamic LVOT obstruction
- D. Progressive systemic hypertension from aortic coarctation

6. A biphasic response during low-to-peak dose dobutamine stress echocardiography (improvement at low dose followed by worsening at peak) is most consistent with:

- A. Viable but ischemic myocardium (hibernating myocardium)**
- B. Normal myocardium throughout
- C. Acute pericarditis without ischemia
- D. Transmural scar with no viability

7. Which condition makes the Teichholz (M-mode) method of estimating left ventricular ejection fraction unreliable?

- A. Sinus tachycardia at 110 beats per minute
- B. Mild mitral annular calcification
- C. Mild concentric LV hypertrophy with normal wall motion
- D. Regional wall motion abnormalities such as those after a myocardial infarction**

8. During a dobutamine stress echocardiogram, which response is most consistent with an ischemic territory?

- A. Worsening regional wall motion or new wall motion abnormality at peak stress**
- B. Bradycardia with reduced contractility throughout the LV
- C. Improvement of resting wall motion with no new abnormalities
- D. Hyperdynamic, uniform thickening of all segments at peak stress

9. Which echocardiographic finding suggests elevated pulmonary artery systolic pressure?

- A. Increased early diastolic flow propagation velocity by color M-mode
- B. Increased mitral regurgitation velocity used to estimate LA pressure
- C. Decreased aortic valve area on continuity equation
- D. Increased peak tricuspid regurgitation velocity used to estimate RV systolic pressure**

10. Which two-dimensional echocardiographic finding is most suggestive of pulmonary hypertension and right ventricular pressure overload?

- A. Flattening of the interventricular septum only in early diastole
- B. Flattening of the interventricular septum in systole producing a D-shaped left ventricle in short axis**
- C. Concentric left ventricular hypertrophy with small chamber size
- D. Left atrial enlargement with normal right heart chambers

11. In a restrictive ventricular septal defect with normal pulmonary pressures, the Doppler flow across the defect during systole is best characterized as:

- A. High velocity left-to-right turbulent flow**
- B. High velocity right-to-left turbulent flow
- C. Low velocity right-to-left laminar flow
- D. Low velocity bidirectional flow

12. Which echocardiographic finding is most suggestive of a hemodynamically significant atrial septal defect?

- A. Left atrial enlargement with concentric LV hypertrophy
- B. Right atrial and right ventricular enlargement with paradoxical septal motion**
- C. Isolated left ventricular dilation
- D. Aortic root dilation with eccentric LV hypertrophy

13. Which Doppler finding in the descending aorta below the diaphragm is most suggestive of significant aortic coarctation?

- A. Holodiastolic flow reversal
- B. Sharp systolic upstroke with brisk early diastolic flow reversal
- C. Continuous antegrade diastolic flow with delayed upstroke (loss of normal early diastolic flow reversal)**
- D. Triphasic flow with prominent reverse diastolic component

14. Which type of atrial septal defect is the most common?

- A. Ostium primum
- B. Ostium secundum**
- C. Sinus venosus
- D. Coronary sinus

15. Which valve morphology is most consistent with a bicuspid aortic valve on parasternal short axis imaging?

- A. Two cusps with an eccentric, fish-mouth or oval opening in systole**
- B. Three cusps with a central triangular opening
- C. A single cusp with a slit-like central opening
- D. Four cusps with a cross-shaped opening

16. Bicuspid aortic valve is most commonly associated with which of the following aortic abnormalities?

- A. Aortic arch hypoplasia at the isthmus only
- B. Saccular aneurysm of the descending thoracic aorta
- C. Dilation of the abdominal aorta below the renals
- D. Aortic root and ascending aorta dilation (aortopathy)**

17. Where do left atrial thrombi most commonly form, especially in patients with atrial fibrillation?

- A. Left atrial appendage**
- B. Roof of the left atrium between the pulmonary veins
- C. Posterior mitral annulus
- D. Fossa ovalis region of the interatrial septum

18. When estimating right atrial pressure from the inferior vena cava in a spontaneously breathing patient, which finding suggests a normal right atrial pressure?

- A. IVC diameter greater than 2.5 cm with full collapse on sniff
- B. IVC diameter less than or equal to 2.1 cm with greater than 50 percent inspiratory collapse**
- C. IVC diameter greater than 2.1 cm with less than 50 percent collapse
- D. IVC diameter less than 2.1 cm with no respiratory variation

19. Coarctation of the aorta classically occurs at which anatomic location?

- A. At the level of the diaphragmatic hiatus
- B. At the aortic root just above the sinotubular junction
- C. Just distal to the origin of the left subclavian artery, near the ductal insertion**
- D. Just proximal to the bifurcation into the common iliac arteries

20. On contrast echocardiography, which artifact appears as posterior shadowing and apparent wall motion abnormalities due to a high concentration of microbubbles in the left ventricular cavity?

- A. Side lobe artifact from the LV outflow tract
- B. Attenuation (shadowing) artifact from excessive contrast in the near field**
- C. Reverberation between the chest wall and the diaphragm
- D. Mirror image artifact across the pericardium

21. Which is the most important contraindication to consider before performing a transesophageal echocardiogram?

- A. Mild iron-deficiency anemia
- B. Known esophageal stricture, perforation, or recent upper GI surgery**
- C. Stable, well-controlled hypertension
- D. History of paroxysmal atrial fibrillation

22. Where is a left atrial myxoma most commonly attached?

- A. Posterior mitral annulus
- B. Lateral wall of the left atrium
- C. Left atrial appendage tip
- D. Interatrial septum at the fossa ovalis**

23. When performing contrast echocardiography for LV opacification, which imaging adjustment is most appropriate to minimize microbubble destruction?

- A. Use a low mechanical index setting**
- B. Increase the mechanical index to maximum
- C. Use the highest available transmit frequency
- D. Maximize 2D gain and time-gain compensation

24. Which contrast echocardiography technique is most commonly used to detect a patent foramen ovale?

- A. Agitated saline (bubble) study with Valsalva maneuver**
- B. Definity infusion for myocardial perfusion
- C. Microbubble contrast for LV opacification at rest
- D. Stress contrast echocardiography with exercise

25. Which echocardiographic finding is the hallmark of aortic dissection?

- A. Echogenic mural thrombus along the inner curvature
- B. Aortic root dilation with central regurgitant jet
- C. Concentric thickening of the aortic wall with smooth lumen
- D. Mobile intimal flap separating a true and false lumen within the aorta**