1. Which of the following best defines stroke volume (SV)?

- A) The volume of blood in the ventricles at the end of diastole
- B) The amount of blood ejected by the heart in one contraction
- C) The total volume of blood pumped by the heart per minute
- D) The amount of blood returning to the heart

2. What is the main ***formula*** for calculating ***cardiac output (CO)***?

- A) CO = Heart Rate x Blood Pressure
- B) CO = Stroke Volume x Heart Rate
- C) CO = Stroke Volume + Heart Rate
- D) CO = Preload x Afterload

3. What does heart ***sound S1*** indicate?

- A) Closure of the aortic and pulmonary valves
- B) Closure of the mitral and tricuspid valves
- C) Opening of the aortic and pulmonary valves
- D) Ventricular contraction

4. Which ***condition*** is characterized by ***increased afterload***, making the heart work harder to pump blood?

- A) Ischemia
- B) Hemorrhage
- C) Hypertension
- D) Dehydration

5. A ***decreased preload due to dehydration*** would likely result in which of the following?

- A) Increased stroke volume
- B) Decreased stroke volume
- C) Increased cardiac output
- D) Decreased heart rate

6. What is a potential consequence of decreased contractility in the heart?

- A) Increased stroke volume
- B) Decreased cardiac output
- C) Increased heart rate
- D) Improved perfusion of tissues

Questions on Coronary Artery Disease (CAD)

7. ***Atherosclerosis*** in coronary arteries is primarily characterized by:

- A) Thrombus formation
- B) Plaque buildup
- C) Vasodilation
- D) Constriction of blood vessels

8. What is considered a ***non-modifiable*** risk factor for coronary artery disease?

- A) Hypertension
- B) Hyperlipidemia
- C) Age
- D) Smoking

9. Which of the following describes the sequence of events in the pathogenesis of atherosclerosis?

- A) Ischemia → Lipid accumulation → Endothelial injury
- B) Endothelial injury → Lipid accumulation → Inflammation
- C) Inflammation → Plaque formation → Stenosis
- D) All of the above

10. What is a common ***clinical presentation*** of a patient with ***coronary artery disease***?

- A) Increased LDL levels
- B) Decreased exercise tolerance
- C) Chest pain and shortness of breath
- D) All of the above

Questions on Heart Failure

11. ***Decreased cardiac output*** in heart failure may lead to:

- A) Increased patient energy levels
- B) Volunteering for physical activity
- C) Insufficient oxygen delivery to tissues
- D) Accelerated metabolic rate

12. What is a common cause of ***increased left ventricular end-diastolic volume (LVEDV)***?

- A) Decreased preload
- B) Reduced heart rate
- C) Increased blood volume or inadequate heart ejection

- D) Increased contractility

13. Which classification stage of heart failure represents ***end-stage*** requiring advanced interventions?

- A) Stage A
- B) Stage B
- C) Stage C
- D) Stage D

14. In which type of heart failure would *jugular venous distention (JVD*) primarily present?

- A) Left heart failure
- B) Right heart failure
- C) Diastolic heart failure
- D) Systolic heart failure

Questions on Heart Valve Disorders

15. Aortic regurgitation results in:

- A) Increased ejection fraction
- B) Volume overload of the left ventricle
- C) Decreased preload
- D) Mitral valve prolapse

16. Physical exam findings in ***aortic regurgitation*** may include:

- A) Systolic ejection murmur
- B) Diastolic murmur

- C) Aortic stenosis murmur
- D) Continuous murmur

17. ***Diuretics*** are used in aortic regurgitation management for what primary purpose?

- A) To increase contractility
- B) To reduce fluid overload
- C) To increase preload
- D) To decrease stroke volume

18. Which of the following is a common cause of aortic stenosis?

- A) Degenerative calcification
- B) Rheumatic fever
- C) Bicuspid aortic valve
- D) All of the above

General Management Questions

19. Which surgical intervention is considered definitive for ***symptomatic aortic regurgitation***?

- A) Valve repair
- B) Aortic valve replacement
- C) Percutaneous balloon valvuloplasty
- D) Heart transplant

20. What is the recommended approach for ***managing asymptomatic*** patients with ***aortic stenosis***?

- A) Regular echocardiography for monitoring

- B) Immediate surgery
- C) High-dose diuretics
- D) Lifestyle modifications only

21. A classic finding of ***aortic stenosis upon physical examination*** is:

- A) Systolic murmur at the left sternal border
- B) Diastolic murmur best heard at the apex
- C) Loud, harsh mid-systolic ejection murmur
- D) Continuous murmur

Miscellaneous Questions

22. Which of the following medications would ***NOT be indicated*** in heart failure management?

- A) Beta-blockers
- B) Calcium channel blockers
- C) ACE inhibitors
- D) Diuretics

23. What is the significance of the ***S4 gallop*** in a patient with heart failure?

- A) It indicates heart block
- B) It suggests left ventricular hypertrophy
- C) It demonstrates valve regurgitation
- D) It signifies dehydration

24. Which statement is true regarding ***compensatory mechanisms in heart failure***?

- A) Increased stroke volume is always achieved
- B) Heart rate typically decreases
- C) Over time, compensatory mechanisms can lead to further heart damage
- D) Only preload is affected by compensatory mechanisms

Additional Advanced Questions

25. What is the effect of chronic hypertension on the left ventricle?

- A) Decreased wall stress
- B) Ventricular dilation
- C) Ventricular hypertrophy
- D) Improved contractility

26. A patient with untreated ***aortic stenosis*** is likely to experience which symptom first?

- A) Palpitations
- B) Exertional dyspnea
- C) Syncope
- D) Pulmonary edema

27. Which of the following factors can ***increase the afterload*** in heart failure?

- A) Systemic vasodilation
- B) Systemic hypertension
- C) Dehydration
- D) Increased heart rate