

AI and Cardiology Club – Unit 3 Quiz: Cardiac Imaging & Catheterization

Name: _____ Date: _____

Part I: Student Worksheet (Answer on your own before checking the key)

1. In a chest X-ray, why does the heart's outline appear visible?
2. On a frontal (PA) chest X-ray, which heart chambers and vessels are best seen?
3. What condition is suggested when the left heart border straightens on X-ray?
4. What do Kerley B lines on X-ray indicate?
5. Aortic enlargement on chest X-ray could indicate what two conditions?
6. What type of energy does echocardiography use to create heart images?
7. What are the two main features measured by Doppler echocardiography?
8. In a color Doppler study, what does red represent?
9. What does echocardiography measure to assess heart function?
10. What dangerous condition can pericardial effusion lead to?
11. What pressure in catheterization reflects jugular venous pressure?
12. A high pulmonary artery wedge pressure (PCW) suggests what?
13. The Fick Method measures what cardiac parameter?
14. Write the Fick equation for cardiac output.
15. Increased pulmonary vascular resistance (PVR) is seen in what conditions?
16. What is injected during contrast angiography?
17. What is the main use of a coronary angiogram?
18. What does a left ventriculogram assess?
19. In a Thallium-201 scan, what does a reversible defect indicate?
20. What is the main advantage of Technetium-99m over Thallium-201?

Answer Key – Unit 3 Quiz

1. Because it lies next to air-filled lungs, which have a different density.
2. Left heart chambers, aorta, and pulmonary artery.
3. Left atrial enlargement, often due to mitral stenosis.
4. Pulmonary congestion or fluid in the lungs.
5. Aneurysm or valve disease.
6. Sound waves (ultrasound).
7. Speed and direction of blood flow.
8. Blood flowing toward the probe.
9. Ejection fraction – how well the heart pumps blood.
10. Cardiac tamponade – dangerous pressure on the heart.
11. Right atrial pressure.
12. Left heart failure or mitral valve disease.
13. Cardiac output, using oxygen consumption and blood O₂ difference.
14. $CO = O_2 \text{ Used} \div (\text{Arterial } O_2 - \text{Venous } O_2)$.
15. Lung disease or heart failure.
16. Dye (contrast agent) to visualize blood vessels.
17. To detect blockages in coronary arteries.
18. Heart pumping function.
19. Ischemia – blood flow returns to normal at rest.
20. Sharper images and less redistribution.