

# Free PDF Quiz 2026 ARDMS Newest SPI: Sonography Principles and Instrumentation Valid Exam Practice

## SPI Practice (ARDMS A & B)

C  
 What is dynamic aperture?  
 A.Aperture that varies with transmit frequency  
 B.Aperture that decreases as a feature of time  
 C.Aperture that increases with increasing focal period  
 D.Aperture that changes as a characteristic of body rate

A  
 to which acoustic variable is penetration depth inversely associated?  
 A.Frequency  
 B.Wavelength  
 C.Length  
 D.Propagation velocity

B  
 which imaging mode requires a broadband transducer?  
 A.Continuous wave doppler  
 B.Pulsed wave doppler  
 C.Shade drift imaging  
 D.Harmonic imaging

B  
 what's the doppler shift frequency?  
 A.Recieved ultrasound frequency extended through the transmitted ultrasound frequency  
 B.Distinction among the transmitted ultrasound frequency and the acquired ultrasound frequency  
 C.Sum of the transmitted and received ultrasound frequencies  
 D.Ratio of the transmitted ultrasound frequency to the obtained ultrasound frequency

A  
 what's the capability impact of growing the heart beat repetition frequency(PRF)?  
 A.Depth ambiguity  
 B.Decreased body rate  
 C.Poor spatial decision  
 D.Decreased penetration

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## ARDMS SPI Exam Syllabus Topics:

Topic	Details
Topic 1	<ul style="list-style-type: none"> <li>Optimize Sonographic Images: This section of the exam measures skills of Diagnostic Medical Sonographers and assesses their ability to enhance image quality using advanced optimization techniques. It includes understanding axial, lateral, elevational, and temporal resolution, as well as manipulating gain, depth, magnification, and dynamic range. Examinees are expected to apply harmonic imaging, spatial compounding, and gray-scale techniques to produce clear, accurate diagnostic images.</li> </ul>

Topic 2	<ul style="list-style-type: none"> <li>• Provide Clinical Safety and Quality Assurance: This section of the exam measures skills of Clinical Ultrasound Supervisors and focuses on maintaining safety and quality standards in ultrasound practice. It includes infection control protocols, transducer and machine integrity checks, and quality assurance testing using tissue-mimicking phantoms. The section also requires familiarity with statistical parameters like sensitivity and specificity to evaluate diagnostic performance and ensure consistent, reliable imaging outcomes.</li> </ul>
Topic 3	<ul style="list-style-type: none"> <li>• Perform Ultrasound Examinations: This section of the exam measures skills of Sonographers and covers how to conduct ultrasound procedures while ensuring patient safety and diagnostic accuracy. It includes understanding of imaging protocols, ergonomics, patient care, and the interaction between sound and tissue. Candidates are expected to demonstrate abilities to manage patient encounters, apply 3D and 4D and contrast imaging concepts, identify and correct artifacts, and follow confidentiality and privacy standards throughout the scanning process.</li> </ul>
Topic 4	<ul style="list-style-type: none"> <li>• Manage Ultrasound Transducers: This section of the exam measures skills of Ultrasound Technicians and focuses on the management and proper use of different types of transducers. It evaluates knowledge of transducer components, frequency selection, and application of various 2D, 3D, 4D, and nonimaging transducer concepts. Candidates must show they can choose the appropriate transducer for specific examinations and make necessary frequency adjustments to ensure image quality.</li> </ul>
Topic 5	<ul style="list-style-type: none"> <li>• Apply Doppler Concepts: This section of the exam measures skills of Vascular Sonographers and evaluates understanding and application of Doppler ultrasound principles. It includes knowledge of Doppler angle, flow dynamics, and color and spectral Doppler imaging. The section also covers eliminating aliasing, interpreting waveforms, applying continuous and pulsed wave Doppler, and optimizing Doppler gain and scale to accurately measure blood flow and velocity within vessels.</li> </ul>

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## ARDMS Sonography Principles and Instrumentation Sample Questions (Q207-Q212):

### NEW QUESTION # 207

Which statement describes the purpose of using a spectral Doppler wall filter?

- A. To eliminate the lower velocity signals
- B. To widen the area in which the Doppler shift is sampled
- C. To clean up the audio signals
- D. To eliminate the higher velocity signals

**Answer: A**

Explanation:

The purpose of using a spectral Doppler wall filter is to eliminate lower velocity signals. Wall filters are designed to remove low-frequency Doppler shifts caused by the motion of the vessel walls or surrounding tissues, which are generally of no diagnostic value. By eliminating these lower velocity signals, the wall filter helps to clean up the Doppler signal and reduce clutter, allowing for a clearer and more accurate display of blood flow velocities.

References

- \* ARDMS Sonography Principles and Instrumentation (SPI) Exam Study Guide
- \* "Diagnostic Ultrasound: Principles and Instruments" by Frederick W. Kremkau

**NEW QUESTION # 208**

What is the term for an ultrasound system's ability to display low-level echoes?

- **A. Sensitivity**
- B. Slice thickness
- C. Axial resolution
- D. Lateral resolution

**Answer: A**

Explanation:

Sensitivity is the term for an ultrasound system's ability to display low-level echoes. It refers to the system's capacity to detect and accurately display weak echoes returning from tissues. High sensitivity allows the sonographer to visualize structures that produce faint echoes, such as small or low-contrast lesions. This parameter is critical for ensuring that subtle pathological changes are not missed during imaging.

References:

- \* ARDMS Sonography Principles and Instrumentation guidelines
- \* "Sonography: Principles and Instruments" by Joan P. Baker and Marveen Craig

**NEW QUESTION # 209**

Which adjustment can maintain the same frame rate when the depth is increased?

- **A. Decrease image width**
- B. Increase number of focal zones
- C. Decrease persistence
- D. Increase frequency

**Answer: A**

Explanation:

When the depth of imaging is increased, the time it takes for the ultrasound pulses to travel to and from the deeper structures also increases, which can reduce the frame rate. To maintain the same frame rate, one effective adjustment is to decrease the image width. Narrowing the image width reduces the number of scan lines required to create each frame, allowing the system to maintain a higher frame rate despite the increased depth.

ARDMS Sonography Principles and Instrumentation guidelines

Kremkau, F. W. (2015). Diagnostic Ultrasound: Principles and Instruments.

**NEW QUESTION # 210**

Which factor causes posterior acoustic enhancement?

- A. Strongly attenuating structure
- B. Low-frequency transducer
- C. High-frequency transducer
- **D. Weakly attenuating structure**

**Answer: D**

Explanation:

\* High-Frequency Transducer: These provide better resolution but do not directly cause posterior enhancement.

\* Low-Frequency Transducer: These provide better penetration but are not the cause of posterior enhancement.

\* Strongly Attenuating Structure: This would cause acoustic shadowing rather than enhancement.

\* Weakly Attenuating Structure: Structures that attenuate the ultrasound beam less than the surrounding tissues allow more sound waves to pass through, resulting in increased brightness or "enhancement" behind the structure.

References:

"Ultrasound Physics and Instrumentation" by Frank Miele



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