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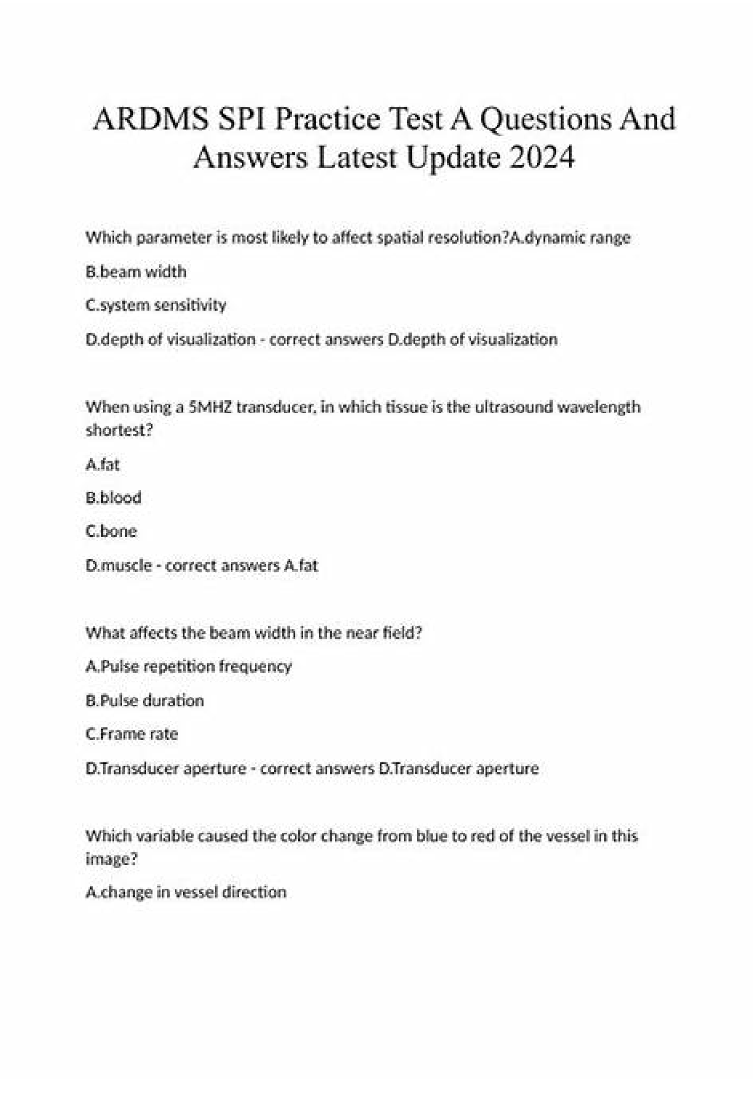

ARDMS SPI Practice Test A Questions And Answers Latest Update 2024

Which parameter is most likely to affect spatial resolution?A.dynamic range

B.beam width

C.system sensitivity

D.depth of visualization - correct answers D.depth of visualization

When using a 5MHZ transducer, in which tissue is the ultrasound wavelength shortest?

A.fat

B.blood

C.bone

D.muscle - correct answers A.fat

What affects the beam width in the near field?

A.Pulse repetition frequency

B.Pulse duration

C.Frame rate

D.Transducer aperture - correct answers D.Transducer aperture

Which variable caused the color change from blue to red of the vessel in this image?

A.change in vessel direction

There is no doubt that having a SPI certificate is of great importance to our daily life and daily work, it can improve your comprehensive strength when you are seeking for a decent job or competing for an important position, mainly because with SPI Certification, you can totally highlight your resume and become more confident in front of your interviewers and competitors. In this case, our SPI question torrent can play a very important part in helping you achieve your dream.

ARDMS SPI Exam Syllabus Topics:

Topic	Details
Topic 1	• 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.

Topic 2	- 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.
Topic 3	- 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.
Topic 4	- 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 - 4D and contrast imaging concepts, identify and correct artifacts, and follow confidentiality and privacy standards throughout the scanning process.
Topic 5	- 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.

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ARDMS Sonography Principles and Instrumentation Sample Questions (Q202-Q207):

NEW QUESTION # 202
Which setting can be increased to correct for clutter artifact when using pulsed-wave Doppler?

- A. Wall filter
- B. Pulse repetition frequency (PRF)
- C. Doppler gain
- D. Sample volume

Answer: A

Explanation:
The wall filter, also known as the high-pass filter, is used in Doppler ultrasound to remove low-frequency signals, which are typically associated with clutter artifacts. Clutter artifacts can be caused by tissue motion or vessel wall movement, and they appear as low-frequency signals that can obscure the desired blood flow signals. By increasing the wall filter setting, these low-frequency signals are filtered out, thus reducing the clutter artifact and providing a clearer depiction of the blood flow.
American Registry for Diagnostic Medical Sonography (ARDMS). Sonography Principles and Instrumentation (SPI) Examination

Review Guide.

NEW QUESTION # 203
Which factor causes posterior acoustic enhancement?

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

Answer: C

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.
Reference:
"Ultrasound Physics and Instrumentation" by Frank Miele
ARDMS Sonography Principles and Instrumentation study materials

NEW QUESTION # 204
Which artifact results from decreased attenuation?

- A. Reverberation
- B. Comet tail
- C. Enhancement
- D. Ringdown

Answer: C

Explanation:
Enhancement is an artifact that results from decreased attenuation. When an ultrasound wave travels through a medium with lower attenuation compared to surrounding tissues, it loses less energy. Consequently, the structures located deeper than the low-attenuation medium appear brighter on the ultrasound image. This artifact is commonly observed behind fluid-filled structures, such as cysts or the urinary bladder, where the sound waves encounter minimal resistance and thus less attenuation.References:
* ARDMS Sonography Principles and Instrumentation guidelines
* "Diagnostic Ultrasound: Principles and Instruments" by Frederick W. Kremkau

NEW QUESTION # 205
What is effected by increasing the color scale?

- A. The color priority decreases
- B. The Nyquist limit is increased
- C. More colors are displayed
- D. The color box width decreases

Answer: B

Explanation:
The Nyquist limit, which is the maximum detectable velocity before aliasing occurs, is directly related to the pulse repetition frequency (PRF). Increasing the color scale on the ultrasound machine effectively increases the PRF. When the PRF is increased, the Nyquist limit is also increased, allowing for the measurement of higher velocities without aliasing.
Reference:
ARDMS Sonography Principles and Instrumentation guidelines
Kremkau, F. W. (2015). Diagnostic Ultrasound: Principles and Instruments. Elsevier.

NEW QUESTION # 206
What determines the resonant frequency of a pulsed wave transducer?

- A. Element diameter and speed of sound in element
- B. Element thickness and speed of sound in element
- C. Element thickness and pulse repetition frequency
- D. Element diameter and element thickness

Answer: B

Explanation:
The resonant frequency of a pulsed wave transducer is determined by the thickness of the piezoelectric element and the speed of sound within that element. The resonant frequency is inversely proportional to the element thickness and directly proportional to the speed of sound in the material. Thinner elements and higher sound speeds result in higher resonant frequencies, while thicker elements and lower sound speeds result in lower resonant frequencies.
ARDMS Sonography Principles and Instrumentation guidelines
Kremkau, F. W. (2015). Diagnostic Ultrasound: Principles and Instruments. Elsevier.

NEW QUESTION # 207
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