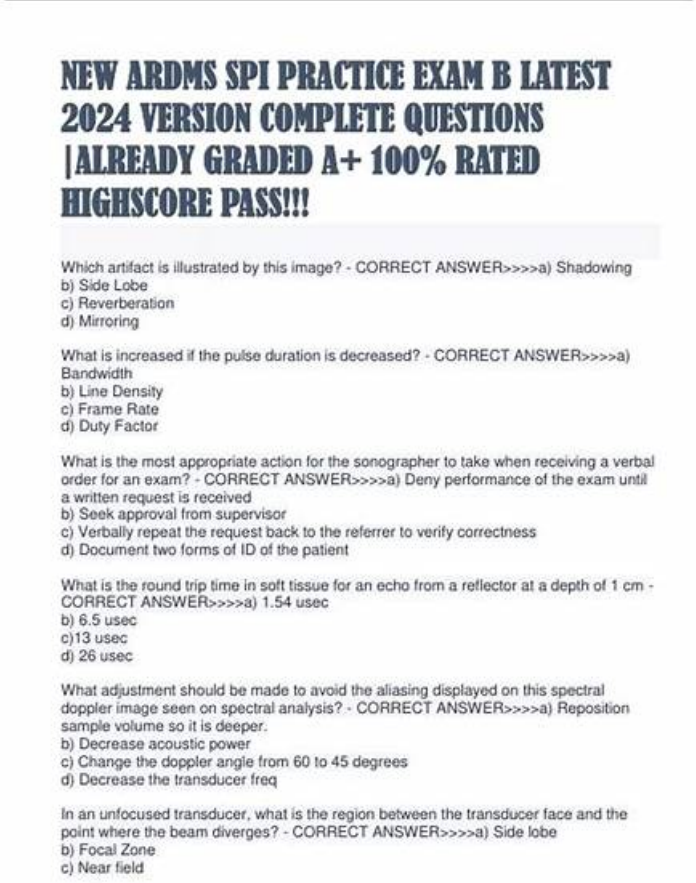
100% Pass Latest ARDMS - New SPI Exam Pattern



NEW ARDMS SPI PRACTICE EXAM B LATEST 2024 VERSION COMPLETE QUESTIONS |ALREADY GRADED A+ 100% RATED HIGHSCORE PASS!!!

Which artifact is illustrated by this image? - CORRECT ANSWER>>>>a) Shadowing
b) Side Lobe
c) Reverberation
d) Mirroring

What is increased if the pulse duration is decreased? - CORRECT ANSWER>>>>a) Bandwidth
b) Line Density
c) Frame Rate
d) Duty Factor

What is the most appropriate action for the sonographer to take when receiving a verbal order for an exam? - CORRECT ANSWER>>>>a) Deny performance of the exam until a written request is received
b) Seek approval from supervisor
c) Verbally repeat the request back to the referrer to verify correctness
d) Document two forms of ID of the patient

What is the round trip time in soft tissue for an echo from a reflector at a depth of 1 cm - CORRECT ANSWER>>>>a) 1.54 usec
b) 6.5 usec
c)13 usec
d) 26 usec

What adjustment should be made to avoid the aliasing displayed on this spectral doppler image seen on spectral analysis? - CORRECT ANSWER>>>>a) Reposition sample volume so it is deeper.
b) Decrease acoustic power
c) Change the doppler angle from 60 to 45 degrees
d) Decrease the transducer freq

In an unfocused transducer, what is the region between the transducer face and the point where the beam diverges? - CORRECT ANSWER>>>>a) Side lobe
b) Focal Zone
c) Near field

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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	• 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 3	• 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 4	• 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 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 (Q52-Q57):

NEW QUESTION # 52
What combination of transmitting frequency and depth produces the greatest ultrasound beam attenuation?

- A. 7.5 MHz at 2 cm
- B. 5 MHz at 2 cm
- C. 7.5 MHz at 5 cm
- D. 5 MHz at 5 cm

Answer: C

Explanation:
Comprehensive and Detailed Explanation From Exact Extract:
Attenuation increases with both frequency and depth. The highest attenuation occurs at the highest frequency and greatest depth. 7.5 MHz attenuates faster than 5 MHz, and 5 cm represents deeper tissue penetration.
Principles and Instrumentation state:
"Attenuation is directly proportional to frequency and path length: Attenuation = Frequency × Depth × Attenuation Coefficient."
Therefore, the correct answer is D: 7.5 MHz at 5 cm.
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NEW QUESTION # 53
Which type of resolution will be improved by decreasing the depth of field?

- A. Axial
- B. Temporal
- C. Elevational
- D. Lateral

Answer: D

Explanation:
Lateral resolution refers to the ability to distinguish two structures that are side by side. It is dependent on the width of the ultrasound beam. By decreasing the depth of field, the beam width is reduced at any given point along the depth, which improves the lateral resolution. This is because a narrower beam can better distinguish between objects that are close together laterally.
Reference:
ARDMS Sonography Principles and Instrumentation guidelines
Kremkau, F. W. (2015). Diagnostic Ultrasound: Principles and Instruments.

NEW QUESTION # 54
What produces increased attenuation within soft tissue?

- A. Lower intensity of the ultrasound beam
- B. Higher intensity of the ultrasound beam
- C. Lower frequency of the ultrasound beam
- D. Higher frequency of the ultrasound beam

Answer: D

Explanation:
Attenuation refers to the reduction in the intensity of the ultrasound beam as it travels through tissue. Higher frequency ultrasound beams experience more attenuation because they are absorbed and scattered more than lower frequency beams. This is due to the fact that higher frequency waves have shorter wavelengths and interact more with the small particles in tissues, causing greater energy loss.
Reference: ARDMS Sonography Principles and Instrumentation, Chapter on Ultrasound Physics and Instrumentation.

NEW QUESTION # 55
Which artifact is demonstrated by the arrow in this image?
A close-up of an ultrasound Description automatically generated

- A. Mirroring
- B. Noise
- C. Shadowing
- D. Enhancement

Answer: C

Explanation:
Comprehensive and Detailed Explanation From Exact Extract:
The image shows an area of signal dropout directly deep to the strongly reflecting structure (likely a vessel wall or calcification), indicated by the arrow. This is a classic example of shadowing artifact.
According to sonography Principles and Instrumentation:
"Shadowing occurs when a highly attenuating or reflective structure blocks the ultrasound beam, resulting in absence of signal distal to the object."
* Mirroring (A) produces duplicated structures.
* Noise (B) appears as random speckles.
* Enhancement (D) produces increased echogenicity distal to an anechoic structure.
Therefore, the correct answer is C: Shadowing.

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NEW QUESTION # 56
What is the relationship between overall gain and image brightness?

- A. The higher the overall gain, the darker the image
- B. The higher the overall gain, the brighter the image
- C. There is no relationship between overall gain and image brightness
- D. The lower the overall gain, the brighter the image

Answer: B

Explanation:
Overall gain in ultrasound refers to the amplification of all the received echo signals. Increasing the overall gain amplifies the signals, making the entire image brighter. Conversely, decreasing the overall gain reduces the signal amplification, resulting in a darker image. Overall gain adjustment affects the entire image uniformly, unlike time gain compensation (TGC), which adjusts the gain at different depths independently.
References
* ARDMS Sonography Principles and Instrumentation (SPI) Exam Study Guide
* "Diagnostic Ultrasound: Principles and Instruments" by Frederick W. Kremkau

NEW QUESTION # 57
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