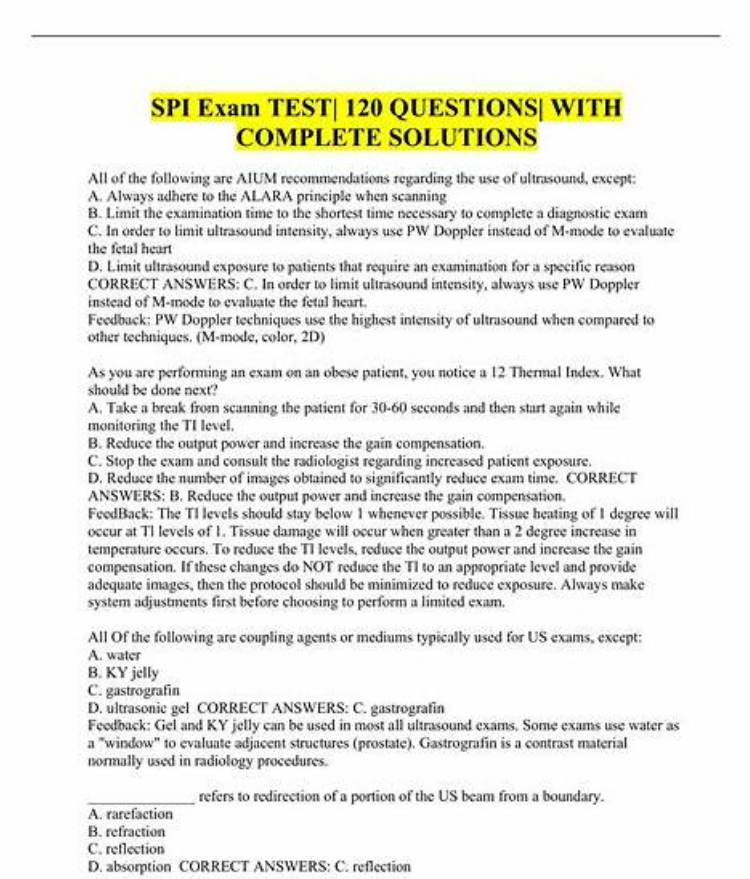
Reliable SPI Exam Tips | SPI Valid Real Test



SPI Exam TEST| 120 QUESTIONS| WITH COMPLETE SOLUTIONS

All of the following are AIUM recommendations regarding the use of ultrasound, except:
A. Always adhere to the ALARA principle when scanning
B. Limit the examination time to the shortest time necessary to complete a diagnostic exam
C. In order to limit ultrasound intensity, always use PW Doppler instead of M-mode to evaluate the fetal heart
D. Limit ultrasound exposure to patients that require an examination for a specific reason
CORRECT ANSWERS: C. In order to limit ultrasound intensity, always use PW Doppler instead of M-mode to evaluate the fetal heart.
Feedback: PW Doppler techniques use the highest intensity of ultrasound when compared to other techniques. (M-mode, color, 2D)

As you are performing an exam on an obese patient, you notice a 12 Thermal Index. What should be done next?
A. Take a break from scanning the patient for 30-60 seconds and then start again while monitoring the TI level.
B. Reduce the output power and increase the gain compensation.
C. Stop the exam and consult the radiologist regarding increased patient exposure.
D. Reduce the number of images obtained to significantly reduce exam time. CORRECT ANSWERS: B. Reduce the output power and increase the gain compensation.
FeedBack: The TI levels should stay below 1 whenever possible. Tissue heating of 1 degree will occur at TI levels of 1. Tissue damage will occur when greater than a 2 degree increase in temperature occurs. To reduce the TI levels, reduce the output power and increase the gain compensation. If these changes do NOT reduce the TI to an appropriate level and provide adequate images, then the protocol should be minimized to reduce exposure. Always make system adjustments first before choosing to perform a limited exam.

All Of the following are coupling agents or mediums typically used for US exams, except:
A. water
B. KY jelly
C. gastrografin
D. ultrasonic gel CORRECT ANSWERS: C. gastrografin
Feedback: Gel and KY jelly can be used in most all ultrasound exams. Some exams use water as a "window" to evaluate adjacent structures (prostate). Gastrografin is a contrast material normally used in radiology procedures.

_____ refers to redirection of a portion of the US beam from a boundary.
A. rarefaction
B. refraction
C. reflection
D. absorption CORRECT ANSWERS: C. reflection

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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	• 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.
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	• 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	• 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.

Pass Guaranteed Quiz 2026 Fantastic ARDMS SPI: Reliable Sonography Principles and Instrumentation Exam Tips

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ARDMS Sonography Principles and Instrumentation Sample Questions (Q109-Q114):

NEW QUESTION # 109
Which factor affects lateral resolution in ultrasound?

- A. Depth of penetration
- B. Beam width
- C. Wavelength
- D. Propagation speed

Answer: B

Explanation:
Comprehensive and Detailed Explanation From Exact Extract:
Lateral resolution is the system's ability to distinguish two structures side-by-side. It is directly determined by the beam width - the narrower the beam, the better the lateral resolution.
Principles and Instrumentation:
"Lateral resolution depends on beam width at a given depth. Narrower beams provide better lateral resolution." Depth of penetration influences maximum imaging depth.

Propagation speed is largely constant in soft tissue.
Wavelength affects axial resolution.
Therefore, the correct answer is A: Beam width.
-

NEW QUESTION # 110
What limits the maximum imaging depth for a given transducer?

- A. Amplitude
- B. Focal depth
- C. Frequency
- D. Propagation speed

Answer: C

Explanation:
Comprehensive and Detailed Explanation From Exact Extract:
The imaging depth is limited by the frequency of the transducer because higher frequency sound waves attenuate more rapidly as they penetrate tissue, reducing maximum depth capability.
According to Principles and Instrumentation:
"Higher frequencies provide better resolution but have increased attenuation, limiting penetration depth. Lower frequencies penetrate deeper but at the cost of resolution." Propagation speed is relatively constant in soft tissue (~1540 m/s), amplitude affects signal strength but not depth limit directly, and focal depth is an adjustable beam parameter.
Therefore, the correct answer is B: Frequency.

NEW QUESTION # 111
In this image, which artifact is demonstrated?
A close-up of a sound wave Description automatically generated

- A. Spectral broadening
- B. Aliasing
- C. Range ambiguity
- D. Mirroring

Answer: D

Explanation:
Comprehensive and Detailed Explanation From Exact Extract:
The provided image shows a pulsed-wave Doppler spectral display. There are two identical Doppler spectra present - one on the top and an inverted one on the bottom - a classic appearance of the mirroring artifact.
Mirroring occurs when the strong Doppler signal reflects off a highly reflective interface and produces a duplicate signal on the opposite side of the baseline. The mirrored signal mimics the original spectral waveform but appears as a reversed, symmetric version.
According to official sonography Principles and Instrumentation references:
"Mirror image artifact in Doppler (also called cross-talk) occurs when a strong signal is incorrectly displayed on both sides of the baseline, producing a duplicated waveform."
* Aliasing would show wrap-around of velocities beyond the Nyquist limit, typically producing a cutoff and color reversal - not seen here.
* Range ambiguity produces overlapping signals from different depths - also not applicable here.
* Spectral broadening would result in widening of the Doppler spectral trace - which is not evident here.
Therefore, the correct answer is A: Mirroring.
-

NEW QUESTION # 112
Which unfocused transducer will have the greatest divergence?

- A. 6 mm aperture, 6 MHz

- B. 4 mm aperture, 4 MHz
- C. 4 mm aperture, 6 MHz
- D. 6 mm aperture, 4 MHz

Answer: B

Explanation:
Transducer beam divergence is influenced by the aperture size and frequency. A smaller aperture and lower frequency result in greater beam divergence. Among the given options, the transducer with a 4 mm aperture and 4 MHz frequency will have the greatest divergence. This is because the smaller aperture size contributes to a wider beam spread, and the lower frequency also increases the divergence compared to higher frequencies.
Reference:
ARDMS Sonography Principles and Instrumentation guidelines
Kremkau, F. W. (2015). Diagnostic Ultrasound: Principles and Instruments. Elsevier.

NEW QUESTION # 113
Which adjustment would eliminate aliasing in the Doppler waveform in this image?

- A. Decrease wall filter.
- B. Increase velocity scale.
- C. Decrease Doppler gain.
- D. Increase sample size.

Answer: B

Explanation:
Comprehensive and Detailed Explanation From Exact Extract:
Aliasing occurs when Doppler frequency shifts exceed the Nyquist limit (which equals half the pulse repetition frequency). Increasing the velocity scale (which increases PRF) raises the Nyquist limit, reducing or eliminating aliasing.
Principles and Instrumentation state:
"Aliasing in pulsed-wave Doppler can be corrected by increasing the pulse repetition frequency (velocity scale), allowing higher velocities to be displayed without wraparound." Decreasing gain affects amplitude, not aliasing.
Wall filter adjustments remove low-velocity signals, not aliasing.
Increasing sample size affects spatial resolution and may reduce frame rate but does not address aliasing.
Therefore, the correct answer is C: Increase velocity scale.
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NEW QUESTION # 114
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