Lecture 12 Quiz

ⓘ This is a preview of the published version of the quiz

Started: May 19 at 9pm

Quiz Instructions

Question 1 — 1 pts

Which of the following are typical goals for gradient waveform design?

- ○ All of these
- ○ Spatial Encoding
- ○ Image Contrast
- ○ Motion Encoding
- ○ Speed and SNR-efficiency

Question 2 — 1 pts

Which of the following are typical constraints for gradient waveform design?

- ○ All of these
- ○ Gradient hardware
- ○ Peripheral nerve stimulation
- ○ Pulse sequence parameters
- ○ Field imperfections

Question 3

1 pts

The logical coordinate system refers to:

- ○ The imaging frame
- ○ The laboratory frame
- ○ The rotating frame
- ○ The hardware frame

Question 4

1 pts

Derating gradients by sqrt(3) is done to:

- ○ Design freely rotatable gradient waveforms
- ○ Avoid peripheral nerve stimulation
- ○ Limit the effects of eddy currents
- ○ Match gradient amplifier specifications

Question 5

1 pts

Analytic gradient waveform design is:

- ○ Fast and precise

- Fast and imprecise
- Slow and precise
- Slow and imprecise

Question 6

1 pts

Designing gradient waveforms involves:

- Careful calculation of gradient ramps and timing
- Ambiguous gradient amplitude calculations
- Ambiguous gradient duration calculations
- Time scales that are below microseconds

Question 7

1 pts

Gradient waveform design:

- Can be formulated as a convex optimization problem.
- Can not be formulated as a convex optimization problem.
- Requires only binary search.
- Can be generalized for all problems.

Question 8

1 pts

Gradient waveform design can be used to:

- ◯ All of these
- ◯ Define time-optimal gradient waveforms.
- ◯ Reduce both TE and TR
- ◯ Improve SNR
- ◯ Limit artifacts

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