Lecture 13 Quiz

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

Started: May 19 at 8:55pm

Quiz Instructions

Please choose the best answer

Question 1 — 1 pts

The point-spread function (PSF) is

- ○ the Fourier transform of the k-space sampling pattern
- ○ none of these
- ○ the k-space corresponding to a single point
- ○ the central k-space information

Question 2 — 1 pts

In MRI the PSF most generally consists of

- ○ a delta function at the center with no other signal
- ○ a delta function at the center, with undesired sidelobes
- ○ a narrow central peak with finite width, with undesired sidelobes
- ○ a narrow central peak with finite width, and no other signal

Question 3

1 pts

In typical Cartesian k-space sampling the PSF has

- no replicas in either direction
- replicas in the phase-encode direction, 1/Δky apart
- replicas in the frequency-encode direction, 1/Δ kx apart
- replicas in both directions, 1/Δk apart

Question 4

1 pts

Apodization of k-space is used

- to reduce replica amplitude
- to reduce modulation of the image
- to reduce ringing artifact
- to reduce the PSF width

Question 5

1 pts

If the k-space data are multiplied by a cosine, with 10 cycles across the phase-encode sampling extent, the PSF will

- be shifted by 10 pixels in the phase-encode direction
- be split into replicas centered at ±5 pixels in the phase-encode direction

- be split into replicas centered at ±10pixels in the phase-encode direction
- be convolved with a cosine in the phase-encode direction

Question 6

1 pts

Some ways to order samples in 3D Cartesian ky-kz space are

- ky-inside-kz sequential
- dividing into annular rings in ky-kz
- all of these
- centric spiral out

Question 7

1 pts

Randomized sampling tends to produce

- amplification of high-spatial-frequency noise
- a PSF with circular symmetry
- a PSF with incoherent aliasing
- a PSF with ghosting

Question 8

1 pts

Exciting two slices, where one has constant sign for each ky line and the other has

alternating sign for each ky results in

- An image where slices are simply added
- An image where slices are aliased, after shifting the second by 1/2 FOV
- None of these
- An image where the slice signals are subtracted

Question 9

1 pts

A checkerboard sampling approach, with half the original samples produces

- an image where aliased replicas are along diagonals
- an image with aliasing in only one direction
- none of these
- an image with no aliasing

Question 10

1 pts

If a single-slice echo train lasts 100ms, but due to SAR can only be played every 150ms, then the total number of slices that can be interleaved if TR=3s is

- About 20
- About 30
- About 15
- About 12

No new data to save. Last checked at 9:00pm

Submit Quiz