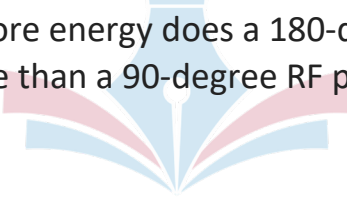


MRSO PREP FLASHCARDS

Question 1

How much more energy does a 180-degree RF pulse have than a 90-degree RF pulse?

A decorative graphic of an open book with a quill pen. The book is open, showing its pages in shades of light blue and pink. A white quill pen is positioned vertically in the center, resting on the pages. The entire graphic is centered on the page.

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Answer 1

4 Times More Energy



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Question 2

What amount of danger will an aneurysm implant from 2019, at a respectable institution utilizing MR-tested clips provided to our patient, according to the ACR guidance on MRI Safety 2020?

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Answer 2

Low

A decorative graphic featuring a light blue fountain pen nib in the center, with a white dot at its tip. The nib is flanked by two curved, overlapping pages: a light blue page on the left and a light pink page on the right. The entire graphic is centered below the text 'Answer 2'.

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Question 3

It is advised by the ACR Manual on MRI Safety 2020 to stop and do a last check to ensure that you are scanning the proper patient and have a screening sheet that has been checked.

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Answer 3

True



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Question 4

What is the half wavelength at 7T that puts a patient in danger of resonant burns, according to the ACR handbook on MRI Safety 2020?

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Answer 4

5 to 7 centimeters



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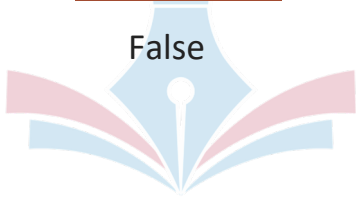
Question 5

It is permissible to scan a pregnant woman during the first trimester, according to the IEC 60601-2-33 document.

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Answer 5

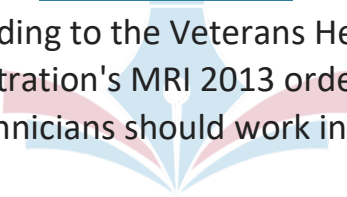
False



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Question 6

According to the Veterans Health Administration's MRI 2013 order, how many technicians should work in zone 2?



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Answer 6

Two

A decorative graphic featuring a light blue fountain pen nib pointing downwards, centered over an open book. The book's pages are represented by curved shapes in shades of light blue and light pink.

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Question 7

A/m defines?



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Answer 7

Magnetic field strength



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Question 10

What Does B0 define?

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Answer 10

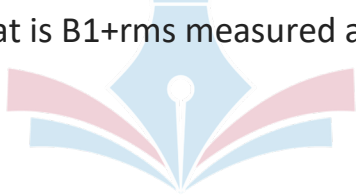
Magnetic flux density

A decorative graphic centered on the page. It features a stylized open book with light blue pages and pinkish-red covers. A white pen nib is positioned vertically in the center, pointing downwards, overlapping the book's spine.

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Question 11

What is B1+rms measured as?



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Answer 11

W/kg J/kg MicroTesla



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Question 12

Is it possible to scan a patient at 3.0T if the MR conditions say that an implanted device can only be scanned at 128MHz?

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Answer 12

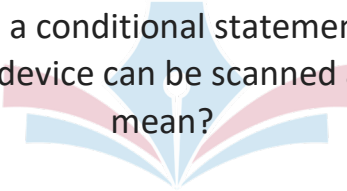
Yes

A decorative graphic featuring a light blue fountain pen nib pointing downwards, centered over an open book. The book's pages are represented by curved shapes in shades of light blue and light pink.

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Question 13

What does a conditional statement that an implanted device can be scanned at 64MHz mean?

A decorative graphic of an open book with a quill pen is centered behind the text. The book is open, with light blue pages and a pinkish-red cover. The quill pen is positioned vertically in the center of the book's spine.

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Answer 13


It can be scanned at 1.5T



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Question 14

In the presence of a magnetic source, copper has a weakly repulsive force. Is it taken into account?

A decorative graphic consisting of several overlapping, semi-transparent shapes in shades of blue, purple, and pink, arranged in a fan-like pattern at the bottom of the text area.

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Answer 14

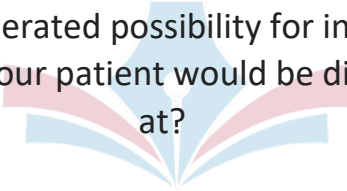
Diamagnetic



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Question 15

The generated possibility for induced current in our patient would be discovered at?



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Answer 15

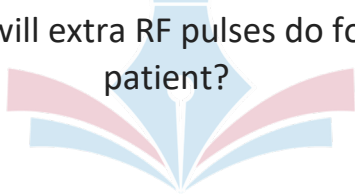
Peripheral to isocenter



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Question 16

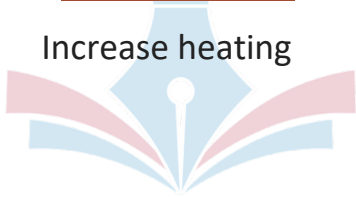
What will extra RF pulses do for our patient?



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Answer 16

Increase heating



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Question 17

FPO: What will B do?



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Answer 17

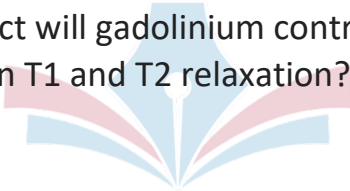
It will limit B1+rms and slew rate



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Question 18

What effect will gadolinium contrast have on T1 and T2 relaxation?



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Answer 18

It will shorten it



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Question 19

How densely packed are magnetic flux lines described?



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Answer 19

Magnetic flux density



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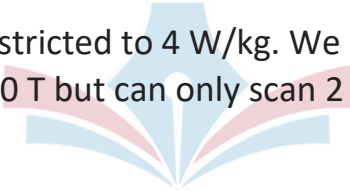
Question 20

An implant condition specifies that an implant can only be scanned in normal mode over the entire body. What exactly does this mean?

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Answer 20

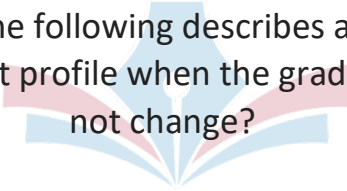
We are restricted to 4 W/kg. We can scan up to 3.0 T but can only scan 2 W/kg.



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Question 21

Which of the following describes a period in a gradient profile when the gradients do not change?



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Answer 21


Duty cycle

A decorative graphic centered on the page. It features a light blue fountain pen nib pointing downwards, with a white dot at its tip. The nib is surrounded by several curved, overlapping bands in shades of light blue and light pink, creating a fan-like or floral shape.

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Question 22

Which of the following describes the intensity of a gradient in mT/m in a gradient profile?



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Answer 22

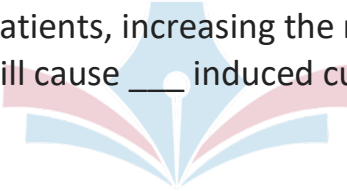
Maximum gradient



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Question 23

In our patients, increasing the repeat period will cause ____ induced currents.



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Answer 23

Decreased



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Question 24

In the presence of a magnetic source, iron exhibits a very high attractive force.

Is this considered?

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Answer 24

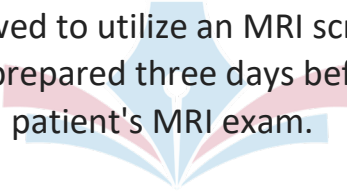
Ferromagnetic



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Question 25

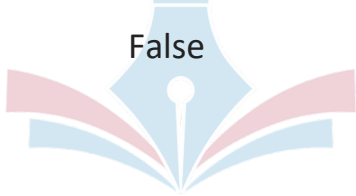
It is allowed to utilize an MRI screening sheet prepared three days before a patient's MRI exam.



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Answer 25

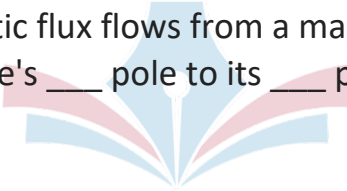
False



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Question 26

Magnetic flux flows from a magnetic source's ____ pole to its ____ pole.



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Answer 26

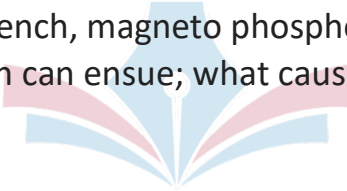
North; South



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Question 27

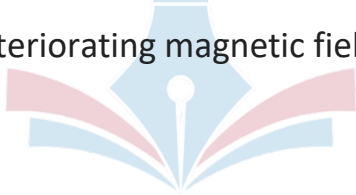
After a quench, magneto phosphenes and confusion can ensue; what causes this?



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Answer 27


Deteriorating magnetic field



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Question 28

Normal mode restricts the gradient coils' functioning to ___ their maximum.



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Answer 28

80%

A decorative graphic featuring a light blue fountain pen nib pointing downwards, centered over an open book. The book's pages are represented by curved shapes in light blue and light pink, fanning out from the center.

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Question 29

A magnetic source attracts an item forcefully. An item that behaves in this manner has _____ susceptibility.

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Answer 29

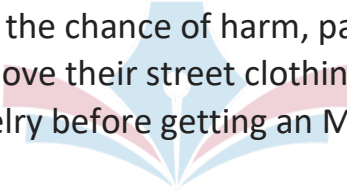
High

A decorative graphic featuring a light blue fountain pen nib pointing downwards, centered over an open book. The book's pages are represented by curved shapes in shades of light blue and pink, fanning out from the center.

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Question 30

To limit the chance of harm, patients should remove their street clothing and any jewelry before getting an MRI.



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Answer 30

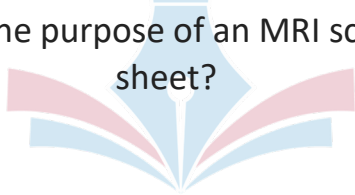
True



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Question 31

What is the purpose of an MRI screening sheet?



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Answer 31

Evaluate for any risks to a patient



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Question 32

Which of the following will result in reduced heating in our patients?



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Answer 32


Echo train length



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Question 33


Which of the following will be mostly determined by the RF field?



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Answer 33

Heating

A decorative graphic featuring a light blue fountain pen nib pointing downwards, centered over an open book. The book's pages are represented by curved shapes in light blue and light red/pink, fanning out from the center.

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Question 34

What time period is SAR monitored in the controlled operation mode?



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Answer 34

6 minutes



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Question 35

In what units is SAR measured?



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Answer 35

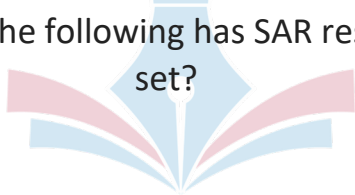
W/kg

A decorative graphic featuring a light blue fountain pen nib pointing downwards, centered over an open book. The book's pages are represented by curved shapes in shades of light blue and pink, fanning out from the center.

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Question 36

Which of the following has SAR restrictions set?



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Answer 36

Individual pulse sequence



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Question 37

In what units is SED measured?



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Answer 37

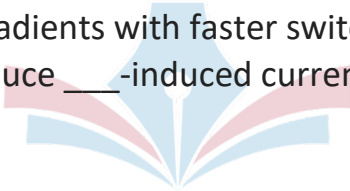


J/kg

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Question 38

Steeper gradients with faster switching will produce ____-induced currents.



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Answer 38

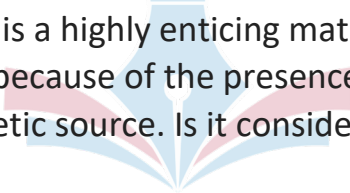
Increased



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Question 39

Titanium is a highly enticing material for some because of the presence of a magnetic source. Is it considered?



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Answer 39

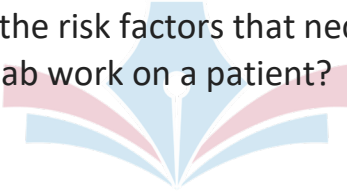
Paramagnetic



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Question 40

What are the risk factors that necessitate lab work on a patient?



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Answer 40

All the choices



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Question 41

In MRI, what cryogen is used?



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Answer 41

Helium



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Question 42

What does B1 stand for?



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Answer 42

The time-varying RF field



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Question 43

What does the "+" in B1+rms stand for?



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Answer 43

The energy-yielding portion of our RF field



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Question 44

What does the "rms" in B1+rms stand for?



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Answer 44

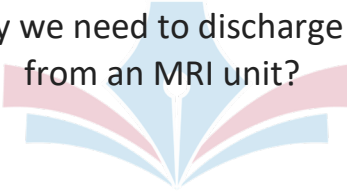
Do rounded value of energy-producing RF



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Question 45

Why may we need to discharge helium from an MRI unit?



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Answer 45

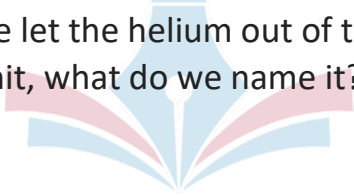
Uncontrollable fire breaks out in zone IV



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Question 46

When we let the helium out of the MRI unit, what do we name it?



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Answer 46

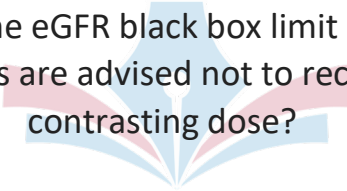
Quench



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Question 47

What is the eGFR black box limit at which patients are advised not to receive a contrasting dose?



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Answer 47

30 eGFR



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Question 48

What is the danger level related to a copper
T IUD?



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Answer 48

Low

A decorative graphic featuring a light blue fountain pen nib pointing downwards, centered over an open book. The book's pages are represented by curved shapes in light blue and light red/pink, fanning out from the center.

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Question 49

What are the risks related to cardiac stents?



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Answer 49

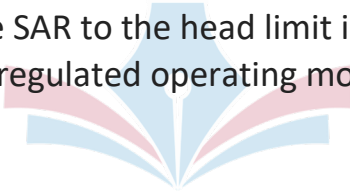
Low

A decorative graphic featuring a light blue fountain pen nib pointing downwards, centered over an open book. The book's pages are represented by curved shapes in light blue and light red/pink, fanning out from the center.

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Question 50

What is the SAR to the head limit in the first level regulated operating mode?



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Answer 50

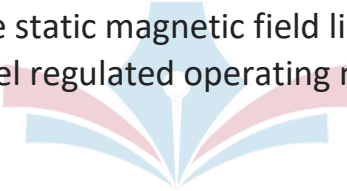
3.2 W/kg

A decorative graphic centered on the page. It features a light blue fountain pen nib pointing downwards, superimposed on an open book. The book's pages are represented by curved shapes in shades of light blue and light pink.

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Question 51

What is the static magnetic field limit in the first level regulated operating mode?



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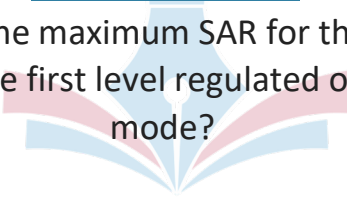
Answer 51



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Question 52

What is the maximum SAR for the entire body in the first level regulated operation mode?

A decorative graphic of an open book with a pen nib is centered behind the text. The book is open, with pages in shades of blue and pink. A white pen nib is positioned at the top center of the book's pages.

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Answer 52

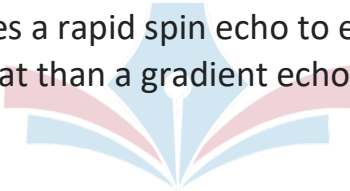
4 W/kg

A decorative graphic featuring a light blue fountain pen nib pointing downwards, centered over an open book. The book's pages are represented by curved shapes in shades of light blue and pink, fanning out from the center.

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Question 53

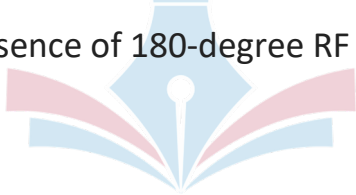
What causes a rapid spin echo to emit more heat than a gradient echo?



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Answer 53

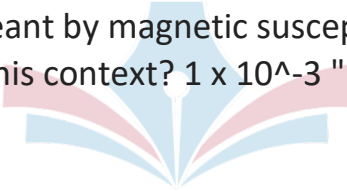
The presence of 180-degree RF pulses



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Question 54

What is meant by magnetic susceptibility in this context? 1×10^{-3} "



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Answer 54

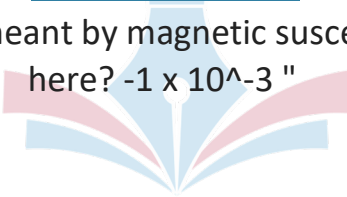
Paramagnetic



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Question 55

What is meant by magnetic susceptibility
here? -1×10^{-3} "



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Answer 55

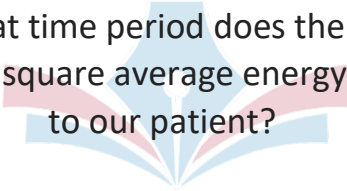
Diamagnetic



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Question 56

Over what time period does the B1 plus root mean square average energy provided to our patient?



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Answer 56

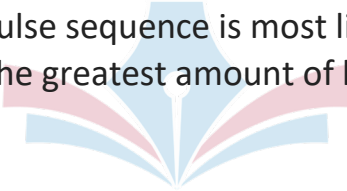
10 seconds



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Question 57

Which pulse sequence is most likely to result in the greatest amount of heating?



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Answer 57

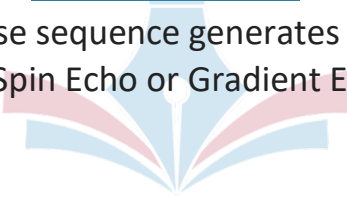
Single shot fast spin echo



MRSO PREP FLASHCARDS

Question 58

Which pulse sequence generates the most heat: Spin Echo or Gradient Echo?



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Answer 58

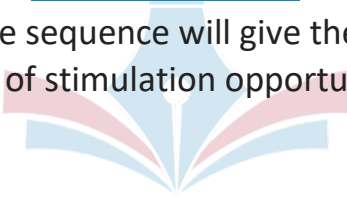
Spin echo



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Question 59

Which pulse sequence will give the greatest number of stimulation opportunities?



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Answer 59

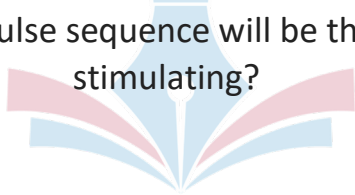
Diffusion-weighted image



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Question 60

Which pulse sequence will be the most stimulating?



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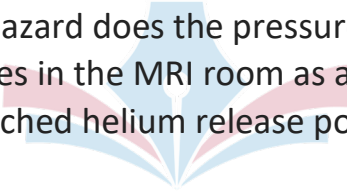
Answer 60



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Question 61

What hazard does the pressure that accumulates in the MRI room as a result of a botched helium release pose?



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Answer 61

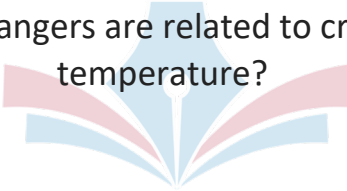
Ear Damage



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Question 62

What dangers are related to cryogen temperature?



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Answer 62

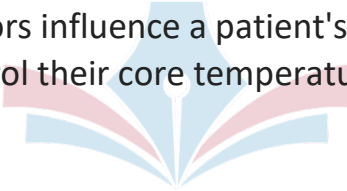
Frostbite



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Question 63

What factors influence a patient's ability to control their core temperature?



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Answer 63

The amount of surface area on our patient



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Question 64

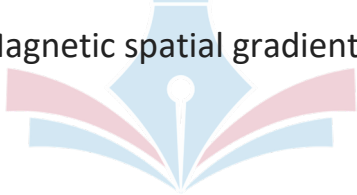
What factors influence the degree of translational force?



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Answer 64

Magnetic spatial gradient



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Question 65

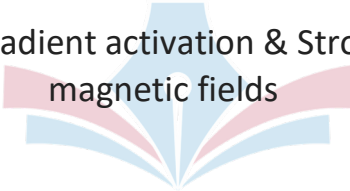
What will cause our patient's induced currents to rise?



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Answer 65

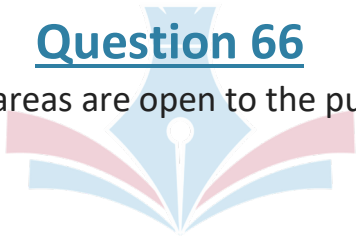
Fast gradient activation & Stronger
magnetic fields



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Question 66

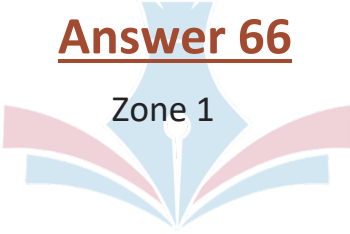
What areas are open to the public?



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Answer 66

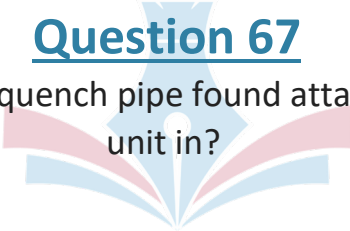
Zone 1



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Question 67

What zone is the quench pipe found attached to the MRI unit in?



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Answer 67

Zone IV



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Question 68

What is our primary worry when it comes to RF field heating?

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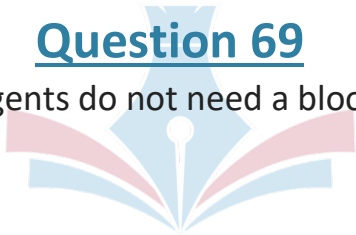
Answer 68

Increasing a patient's core temperature to

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Question 69

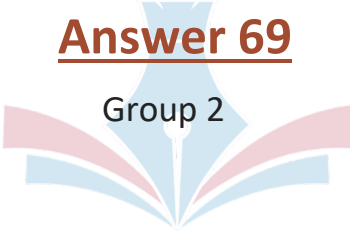
Which agents do not need a blood test?



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Answer 69

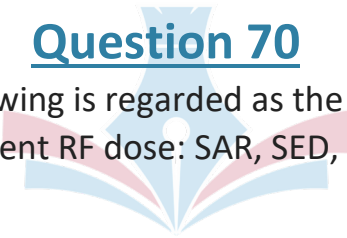
Group 2

A decorative graphic of an open book is centered on the page. The pages are colored in shades of light blue and light pink, fanning out from a central spine. The text 'Answer 69' is positioned above the book, and 'Group 2' is positioned within the book's pages.

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Question 70

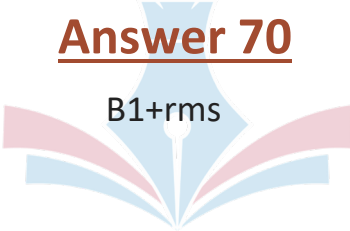
Which of the following is regarded as the most accurate in terms of patient RF dose: SAR, SED, or B1+rms?



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Answer 70

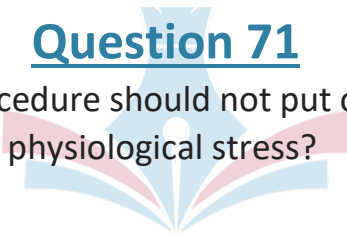
B1+rms



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Question 71

Which form of procedure should not put our patient under physiological stress?



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Answer 71

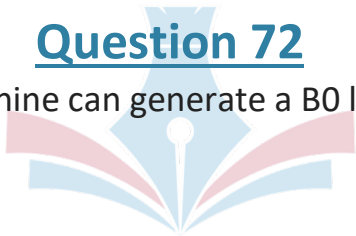
Normal operating mode



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Question 72

Which MRI machine can generate a B0 larger than 3T?



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Answer 72

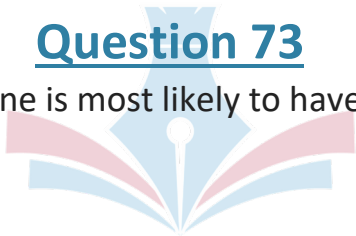
Superconducting MRI Unit



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Question 73

Which MRI machine is most likely to have a vertical field?



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Answer 73

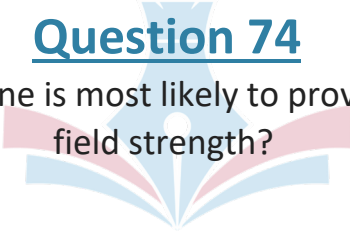
Permanent MRI Unit



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Question 74

Which MRI machine is most likely to provide the weakest field strength?



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Answer 74

Permanent MRI Unit



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Question 75

According to the ACR Manual on MRI Safety 2020, which of the following is true while permitting the entrance to zone 4 to be open?

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Answer 75

All of the choices



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Question 76

Which of the following metals contained in tattoos is most likely to cause a burn on our patient's skin when exposed to RF energy?

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Answer 76

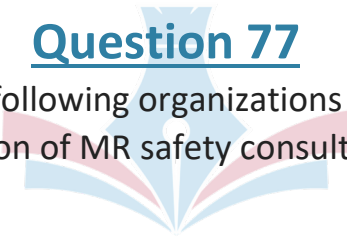
Iron oxide



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Question 77

Which of the following organizations provides the position of MR safety consultant?



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Answer 77



MRSE

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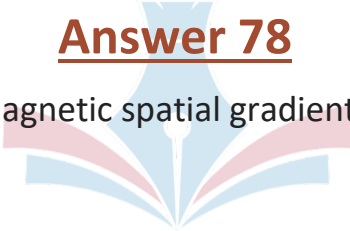
Question 78

Which of the following should be utilized to determine the greatest hazard to our patients from the static magnetic field?

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Answer 78

Magnetic spatial gradient



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Question 79

Which of the following whole sequences is more likely to stimulate our patient: DWI or Traditional Spin Echo?

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Answer 79

A stylized graphic of a fountain pen nib, rendered in light blue and pink. The nib is positioned vertically, with the text 'DWI' centered on it. The nib's body is light blue, and the flared sections on either side are pink. The nib itself is white with a small black dot at the tip.

DWI

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Question 80

Which of the following will reduce our SAR:
increasing the TR, increasing the phase encoding, or
increasing the frequency encoding?

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Answer 80

Increase frequency encoding



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Question 81

Which of the following will have the most impact on our SAR? Should I use a gradient echo or a spin echo?

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Answer 81

Use a gradient echo



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Question 82

Which of the following will determine the degree of stimulation in our patient: Duty cycle or slew rate?

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Answer 82

Slew rate



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Question 83

When transmetalation occurs, which of the following will compete for the gadolinium ion: carbonate or zinc?

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Answer 83

Carbonate



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Question 84

Which of the following will result in less stimulation when reduced: Increases phase steps, decreases FOV, and thickens slices?

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Answer 84

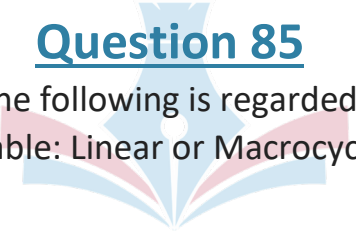
Phase encoding steps



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Question 85

Which of the following is regarded to be more stable: Linear or Macrocyclic?

A decorative graphic in the background features a stylized open book with light blue pages and a red spine. A white pen nib is positioned vertically in the center, pointing upwards towards the text.

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Answer 85

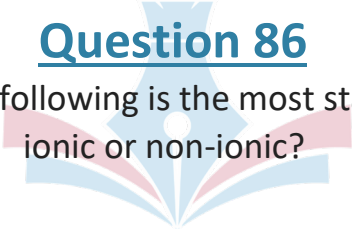
Macrocyclic agent



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Question 86

Which of the following is the most stable option:
ionic or non-ionic?

A decorative graphic in the background features a stylized open book with light blue pages and pinkish-red covers. A blue pen nib is positioned vertically in the center, pointing upwards towards the text.

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Answer 86

An ionic agent



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Question 87

Which of the following is most likely to have the greatest artifact: 316L SS Clip, Cobalt Clip, or Titanium Clip?



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Answer 87

Cobalt clip



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Question 88

Which of the following is most likely to have the greatest artifact: an iron stent, a titanium stent, or a copper stent?

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Answer 88

Iron stent



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Question 89

Which zones necessitate the use of a keypad or badge system to limit access?

A decorative graphic of an open book with a pen nib is centered behind the text. The book is light blue with pinkish-red covers, and the pen nib is white with a blue outline.

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Answer 89

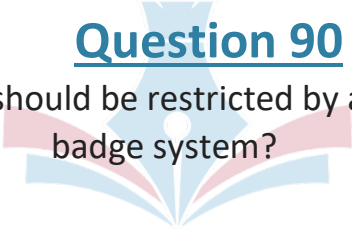
Zone III



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Question 90

Which zone should be restricted by a keypad or badge system?



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Answer 90

Zone 3



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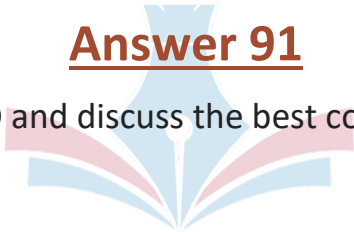
Question 91

You notice a big susceptibility artifact in a patient's brain during scanning. What should be done, according to the ACR 2020 MRI safety manual?

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Answer 91

Contact MRMD and discuss the best course of action



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Question 92

Who is in charge of developing a safe MRI program for a facility that may have a PET/MRI or an MRI in surgery?

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Answer 92

MRMD

A stylized graphic of an open book. The pages are represented by curved shapes in shades of light blue and light pink. The book is centered on the page, with the text 'MRMD' overlaid on the central part of the cover.

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Question 93

Who is in charge of reviewing MRI screening sheets with patients before an MRI exam?

A decorative graphic in the background features a stylized open book with light blue pages and a red spine. A white pen nib is positioned at the top center of the book, pointing downwards.

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Answer 93

Level 2 MR Personnel



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Question 94

Aside from management and another MRI technologist, you are the only one in the facility. Are you able to administer a contrast dosage to a patient?

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Answer 94



No

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Fast gradient activation and stronger magnetic fields of stimulation in our patient: Reduce slice thickness, increase FOV, and reduce image matrix?

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Decrease slice thickness



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of stimulation in our patient: DecrIncrease the thickness of the slice, the FOV, or the image matrix?



MRSO PREP FLASHCARDS

Increase image matrix



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What will increase the amount of stimulation in our patient: Increase slice thickness, reduce FOV, and reduce image matrix?

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Decrease FOV



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Which of the following will Reduce our SAR by lowering TR, flip angle, and frequency encoding.



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Decrease flip angle
decrease our SAR: Decrease
TR, Decrease Flip Angle,
Decrease receiving bandwidth?

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Decrease receiving bandwidth

decrease our SAR: Increase TR, Phase Encoding, or Reduce
Frequency Encoding?

Increase TR