ARMRIT MRI Technologist Examination Overview

Structure: The exam consists of two-hundred and twenty-five (**225**) multiple choice questions, based on one right/or best answer. The cut score is **75**.

MR Physics: Basic, Intermediate and Advanced physics, Precession, Nuclear Alignment, Electromagnetism, Signal Generation, Molecular Formation, Nuclear Alignment, Chemical Shift, Susceptibility.

Clinical Applications: Pulse sequences, Image Parameters, Spatial Localization, Image Quality, Tissue Characteristics, Signal to Noise, Spatial & Temporal Resolution, Enhancement Agents, types of MR magnets, Coils, Artifacts. Contrast Agents.

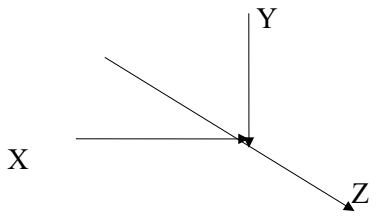
Bioeffects, Safety and Patient Care: Screening Forms, ACR Zones, Magnetic Field Strength, Specific Absorption Rates, Thermal Injuries, Peripheral Nerve Stimulation, Translational Forces, Contrast Agents, Implants,

MR Cross-Sectional Anatomy: Brain, IAC, Pituitary, Brain-Stem, Circle of Willis, Carotids, Renal & Femoral Arteries Cervical/Thoracic/Lumbar Spine, Shoulder, Elbow, Wrist, Hip, Knee, Ankle, Foot, Thorax/Heart, Abdomen, Pelvis.

TOTAL EXAM TIME: Three (3) hours & Thirty (30) minutes.

Multiple Choice Questions: There is only one right and/or best answer to every question, there are no "multiple-multiple choice" questions (i.e., A and B; C and D). Candidates should use all time allotted to ensure all questions have been answered.

In many MRI textbooks and manuals, the main static magnetic field will be symbolized Bo, the radiofrequency (RF) B1 and the components of the net magnetization vector, Mz in the longitudinal plane and Mxy in the transverse plane. The orthogonal (mutually perpendicular) axes of the gradient magnetic fields are oriented in the following directions (horizontal for simplification):



The logical (for educational purposes) gradient directions are; Slice Select gradient is Gz, phase encoding gradient is Gy and the frequency encoding gradient is Gx (the "read out" gradient). Understanding how the gradients are physically (actually) employed during a pulse imaging sequence is important to image quality, the management of motion artifact, flow effects and certain artifacts such as aliasing, chemical shift artifact, magnetic susceptibility, respiratory and cardiac activity. Understand the four tissue characteristics; Hydrogen concentration, T1 effects, T2 effects, and velocity (flow) effects, and the various pulse sequences that bring out these properties. The following pulse sequences are covered: Spin-echo, Gradient -echo, Inversion recovery, MRA, FLAIR, etc. Included in this review package is recommended reading material.