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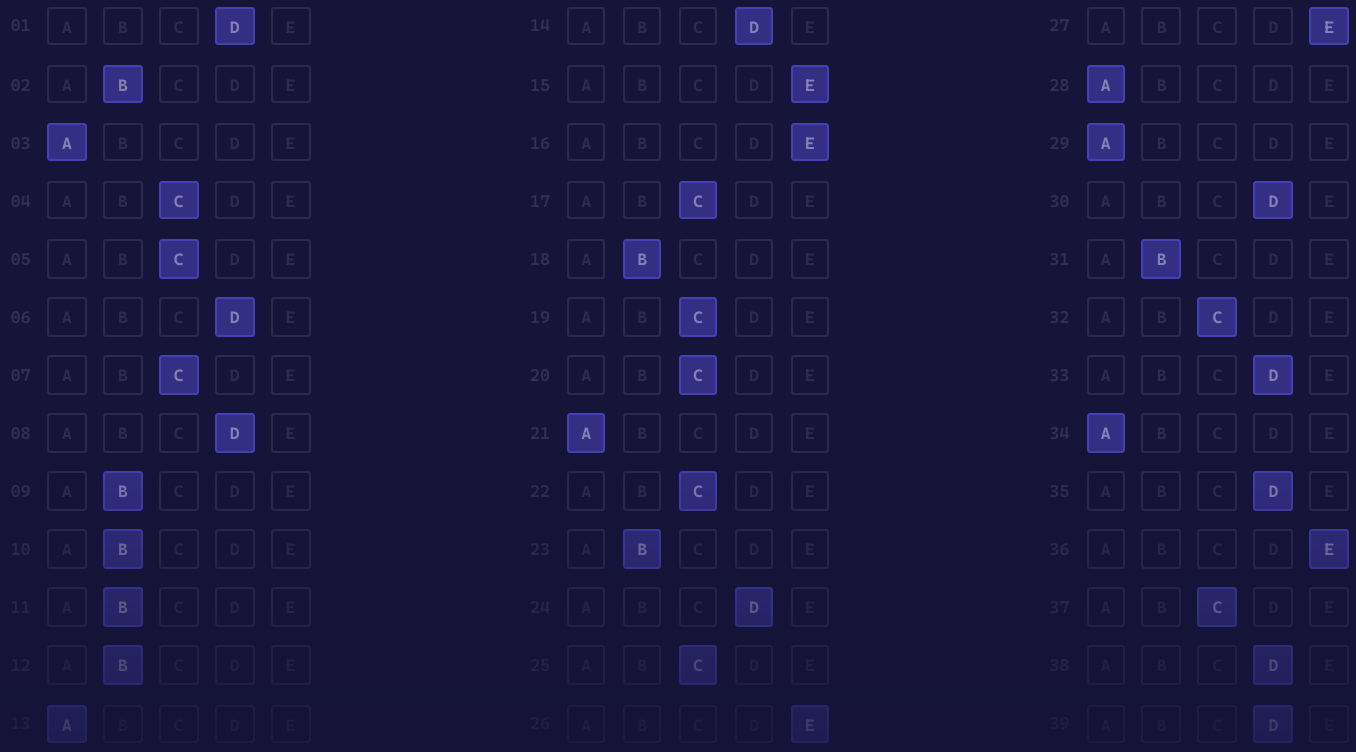

PRACTICE QUESTIONS

State of Qatar Department of Healthcare Professions (DHP) Ministry of Public Health (MOPH)

RAD

Radiology Technician

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for State of Qatar Department of Healthcare Professions (DHP) Ministry of Public Health (MOPH) `RAD`, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, `RAD`
- the question number
- the email address on your order

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QUESTION 1 MULTIPLE CHOICE

Which of the following are core principles of radiation protection in diagnostic radiology? (Choose two.)

A **Justification of the exposure**

B **Optimization of protection (ALARA)**

C Application of a fixed minimum dose for every examination

D Dose limitation for occupational and public exposure

ANSWER **A** · **B**

WHY The three core principles of radiation protection defined by the ICRP and adopted into practice are justification, optimization (ALARA), and dose limitation. The third principle (dose limitation) applies to occupational and public exposure, but it does NOT apply to medical exposure of patients, so option C is incorrect because diagnostic examinations should use the minimum dose consistent with the clinical task, not a fixed dose. Options A and B are both correct core principles.

QUESTION 2 MULTIPLE CHOICE

Which of the following factors contribute to reducing radiation dose in CT scanning? (Choose two.)

A Increasing tube current (mA)

B **Using iterative reconstruction algorithms**

C Increasing tube voltage (kVp) above clinically indicated levels

D **Using automatic tube current modulation (ATCM)**

ANSWER **B** · **D**

WHY Iterative reconstruction algorithms (B) reduce image noise, allowing lower mA and kVp settings, and ATCM (D) adjusts mA based on patient attenuation to avoid overexposure. Increasing mA (A) and increasing kVp beyond clinical need (C) both increase dose and are not dose-reduction strategies.

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QUESTION 3 SINGLE CHOICE

In radiographic positioning, what is the correct definition of the 'oblique' projection?

A The central ray enters the anterior surface and exits the posterior surface of the patient

B The patient's body or body part is rotated so that the central ray passes through at an angle that is neither frontal nor lateral

C The patient lies supine with the central ray directed horizontally across the body

D The central ray is angled along the long axis of the body part

ANSWER B

WHY An oblique projection is created when the body or part being imaged is rotated so the central ray passes between true AP/PA and true lateral orientations, typically at angles such as 45°. Option A describes an AP projection, option C describes a lateral decubitus projection, and option D describes an axial or tangential projection.

QUESTION 4 SINGLE CHOICE

Which of the following items is an absolute contraindication for a patient entering the MRI scan room (Zone IV)?

A Dental fillings

B A titanium orthopedic plate

C An implanted cardiac pacemaker (non-MRI conditional)

D A plain wedding band made of non-ferromagnetic gold

ANSWER C

WHY A non-MRI-conditional implanted cardiac pacemaker is an absolute contraindication because the strong magnetic field can interfere with pacemaker function, cause heating of the leads, or result in dangerous movement of the device. Titanium implants (B), dental fillings (A), and non-ferromagnetic gold jewelry (D) are generally considered safe in MRI.

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QUESTION 5 SINGLE CHOICE

Which quality control test is performed to evaluate the reproducibility and accuracy of the X-ray tube output?

A **kVp accuracy and reproducibility test**

B Grid alignment test

C Light field/X-ray field congruence test

D Film-screen contact test

ANSWER A

WHY kVp accuracy and reproducibility tests use a non-invasive kVp meter to verify that the actual kilovoltage produced by the X-ray tube matches the selected value across the clinical range and is consistent on repeated exposures. Grid alignment (B), light/radiation field congruence (C), and film-screen contact (D) are separate QC tests for different parameters.

QUESTION 6 SINGLE CHOICE

If the mAs is doubled while all other exposure factors (kVp, SID, OID, beam restriction, grid, film/screen speed) remain unchanged, the resulting radiographic density will:

A Remain unchanged

B Decrease by half

C **Approximately double**

D Increase by a factor of four

ANSWER C

WHY Radiographic density is directly proportional to mAs. Doubling the mAs (while holding kVp constant) approximately doubles the number of X-ray photons reaching the image receptor, which approximately doubles the optical density. Changing kVp, however, changes density in a non-linear (approximately power-law) fashion, but mAs has a direct linear relationship with density.

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QUESTION 7 SINGLE CHOICE

For a routine PA projection of the hand, which of the following positioning steps is correct?

A Hand placed prone with fingers flexed and palm on the cassette

B Hand placed prone, fingers extended and slightly separated, with the central ray perpendicular to the third metacarpophalangeal joint

C Hand in oblique position with fingers interlaced and central ray angled 15 degrees caudad

D Hand in lateral position with thumb up and central ray angled 15 degrees cephalad

ANSWER B

WHY The standard PA projection of the hand is performed with the patient seated alongside the table, hand pronated, palm on the cassette, fingers extended and slightly separated to prevent overlap, and the central ray directed perpendicular to the third metacarpophalangeal joint. The other options describe different projections or incorrect positioning.

QUESTION 8 SINGLE CHOICE

A patient receiving an iodinated intravenous contrast injection develops urticaria (hives), mild facial swelling, and wheezing. What is the most appropriate immediate action?

A Continue the injection and reassure the patient

B Stop the injection, notify the radiologist/physician immediately, and prepare to initiate appropriate treatment

C Slow the injection rate and continue until completion

D Discharge the patient because these symptoms will resolve spontaneously

ANSWER B

WHY Urticaria, facial swelling, and wheezing are signs of an anaphylactoid reaction to iodinated contrast that can rapidly progress. The injection must be stopped immediately, the supervising radiologist/physician notified, vital signs monitored, and appropriate emergency treatment (such as antihistamines, corticosteroids, bronchodilators, or epinephrine) prepared and administered under medical direction. Continuing the injection (A, C) or discharging the patient (D) would be dangerous.

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QUESTION 9 SINGLE CHOICE

In digital radiography, what is the primary purpose of a pre-exposure (pre-read or 'dark') exposure performed on the image receptor?

A To sterilize the image receptor between patients

B To calibrate the detector and compensate for dead pixels / gain variations

C To improve the cosmetic appearance of the displayed image

D To reduce the patient's radiation dose during the main exposure

ANSWER B

WHY In computed radiography (CR) and digital radiography (DR), a pre-exposure or pre-read is used to acquire background/offset data that allows the system to compensate for detector dark current, dead pixels, and gain variations across the detector, enabling accurate image uniformity and consistent image quality. It is not for sterilization, cosmetic enhancement, or patient dose reduction.

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