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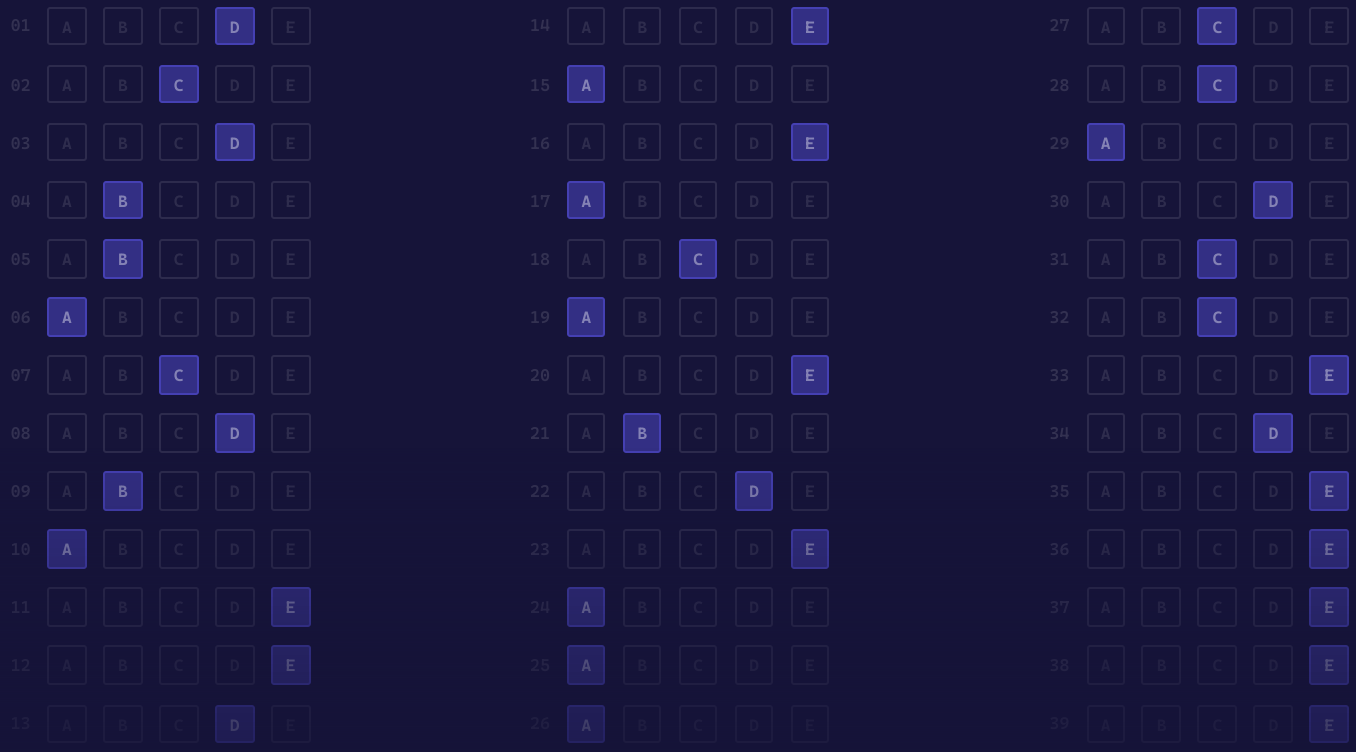

PRACTICE QUESTIONS

Dubai Health Authority (DHA)

RADDR

Specialist Radiology

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for Dubai Health Authority (DHA) `RADDR`, 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, `RADDR`
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

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QUESTION 1 SINGLE CHOICE

A 25-year-old pregnant patient in the first trimester requires imaging for suspected pulmonary embolism. Which imaging modality is most appropriate as the first-line investigation?

A **Bilateral lower extremity venous Doppler ultrasound**

B CT pulmonary angiography (CTPA)

C Ventilation-perfusion (V/Q) scan

D Chest radiograph with abdominal shielding

ANSWER **A**

WHY In a pregnant patient with suspected PE, bilateral lower extremity venous Doppler ultrasound is the recommended first-line investigation. It avoids ionising radiation entirely. If negative and clinical suspicion remains high, a chest X-ray (with shielding) is performed, and only if needed is CTPA or a perfusion-only scan considered. CTPA delivers significant breast and fetal dose, and a V/Q scan, while lower fetal dose than CTPA, still exposes the fetus. Ultrasound therefore best aligns with ALARA.

QUESTION 2 SINGLE CHOICE

Regarding occupational radiation dose limits recommended by the ICRP for radiation workers, which statement is correct?

A **The effective dose limit is 20 mSv per year averaged over 5 consecutive years, with no single year exceeding 50 mSv.**

B The effective dose limit is 50 mSv per year with no averaging period.

C The lens of the eye dose limit is 150 mSv per year.

D The dose limit for the fetus of a declared pregnant worker is 5 mSv per gestation.

ANSWER **A**

WHY The ICRP-recommended occupational effective dose limit is 20 mSv per year averaged over defined 5-year periods, with no single year exceeding 50 mSv. The eye lens limit is 20 mSv/year (averaged), and the fetal dose limit is 1 mSv over the declared term. Option D conflates occupational and public limits incorrectly.

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QUESTION 3 SINGLE CHOICE

On a contrast-enhanced CT of the chest, a cavitating mass with thick, irregular walls and an air crescent sign is seen in the upper lobe of an immunocompromised patient. Which diagnosis is most likely?

A Tuberculous cavity

B Invasive pulmonary aspergillosis with the 'air crescent sign' of recovery

C Squamous cell carcinoma with cavitation

D Lung abscess

ANSWER B

WHY The air crescent sign, in which a rim of air appears between necrotic lung and surrounding viable parenchyma during neutrophil recovery, is classically described in invasive pulmonary aspergillosis. While TB cavities, cavitating squamous carcinoma and lung abscesses can mimic this, the clinical context (immunocompromised host, recovery phase) most strongly supports invasive aspergillosis.

QUESTION 4 SINGLE CHOICE

Which MRI finding is most characteristic of multiple sclerosis in the brain?

A Dawson's fingers — periventricular ovoid lesions perpendicular to the lateral ventricles

B Bilateral symmetric T2 hyperintensities confined to the basal ganglia

C A solitary, homogeneously enhancing mass crossing the corpus callosum

D Diffuse cortical ribboning with restricted diffusion

ANSWER A

WHY Dawson's fingers are periventricular demyelinating plaques oriented perpendicular to the lateral ventricles along the medullary veins, highly characteristic of multiple sclerosis. Option B suggests toxic/metabolic disease, option C is classic for glioblastoma (butterfly glioma), and option D suggests Creutzfeldt-Jakob disease.

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QUESTION 5 SINGLE CHOICE

A patient with an estimated glomerular filtration rate (eGFR) of 28 mL/min/1.73 m^2 is scheduled for a contrast-enhanced CT. Which is the most appropriate action regarding iodinated contrast?

A Proceed with standard-dose iodinated contrast; eGFR is irrelevant.

B Use iodinated contrast only after adequate hydration and consider the clinical necessity; metformin should be withheld.

C Avoid iodinated contrast entirely because any dose will precipitate acute kidney injury.

D Use gadolinium-based contrast instead, since it is safer in renal impairment.

ANSWER B

WHY An eGFR of 28 mL/min/1.73 m^2 places the patient at risk of contrast-induced nephropathy. Withholding metformin is also important to reduce the risk of lactic acidosis if AKI develops. Iodinated contrast is not absolutely contraindicated but should be used only if clinically essential, with prophylactic hydration. Gadolinium-based agents carry a risk of nephrogenic systemic fibrosis in this eGFR range and are not a safer substitute for CT.

QUESTION 6 SINGLE CHOICE

In CT, which reconstruction algorithm is most associated with a substantial reduction in radiation dose while preserving image quality in regions of lower attenuation?

A Iterative reconstruction

B Filtered back projection alone

C High-resolution bone kernel

D Increasing the tube current-time product (mAs)

ANSWER A

WHY Iterative reconstruction techniques use statistical modelling to reduce image noise compared with filtered back projection, enabling dose reduction (often 30–60%) without sacrificing diagnostic quality. Increasing mAs would increase, not decrease, dose.

QUESTION 7 SINGLE CHOICE

A 6-year-old child presents with hip pain, limp, and low-grade fever. A pelvic radiograph shows a small, flattened femoral head with a widened joint space. What is the most likely diagnosis?

A Septic arthritis

B Legg-Calvé-Perthes disease

C Slipped capital femoral epiphysis

D Developmental dysplasia of the hip

ANSWER B

WHY Legg-Calvé-Perthes disease is idiopathic avascular necrosis of the femoral head in children aged 4–8 years. Radiographic findings include a smaller, sclerotic, and flattened femoral head with widening of the joint space. Septic arthritis shows joint effusion without flattening, SCFE occurs in older adolescents with posterior-medial epiphyseal slip, and DDH presents in infancy.

QUESTION 8 SINGLE CHOICE

On MRI, which sequence is most sensitive for detecting acute intracranial haemorrhage within the first few hours?

A T2-weighted imaging

B Fluid-attenuated inversion recovery (FLAIR)

C Susceptibility-weighted imaging (SWI) or gradient echo (GRE)

D Diffusion-weighted imaging (DWI)

ANSWER C

WHY Gradient echo and especially susceptibility-weighted imaging are highly sensitive to the paramagnetic effects of deoxyhaemoglobin and haemosiderin, making them excellent for detecting acute and chronic haemorrhage as well as microbleeds. T2 and FLAIR can miss small acute haemorrhages, and DWI primarily detects cytotoxic oedema, not blood products.

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QUESTION 9 SINGLE CHOICE

According to ICRP recommendations, what is the annual dose limit for the fetus of a pregnant radiation worker who has declared her pregnancy?

A 0.5 mSv

B 1 mSv

C 5 mSv

D 20 mSv

ANSWER B

WHY ICRP Publication 84 and subsequent guidance set the occupational dose limit for the fetus of a declared pregnant worker at 1 mSv per pregnancy (approximately), which is well below the 20 mSv occupational annual limit. Limits of 0.5 mSv apply to members of the public, not the fetus of a worker. 5 mSv and 20 mSv are not correct values for this scenario.

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