INDIAN COLLEGE OF RADIOLOGY AND IMAGING

Academic wing of

INDIAN RADIOLOGICAL & IMAGING ASSOCIATION - IRIA

MASTERS IN CLINICAL RADIOLOGY (MICR)

(MICR by ICRI, Academic wing of IRIA)

How to prepare for MICR step 1 modules – Imaging anatomy and Radiological Physics examination?

(Updated version for 2024 with sample questions)

Both exams are administered online in a designated centres as per other communications.

Every candidate will be provided a high-resolution monitor, keyboard and mouse. Further details will be sent with Hall ticket.

This year onwards, the anatomy module pattern changes again; Image with arrow and related question will be there, the candidate should type the best answer in the relevant answer box.

Both exams are administered on the same day – morning and afternoon sessions.

MICR module 1 – Imaging anatomy

1. This examination tests, the knowledge of candidate with respect to

   a. Anatomy pertinent to all imaging modalities
   b. Factual anatomical knowledge and techniques relevant to Imaging and patient management.
   c. Variants of normal structures and its importance.
   d. Relevant physiological functions of structures, embryology and normal appearances.

2. There is only one type of question

   a. **Image based Single best answer (SBA) questions (total number 100):** Radiological image with arrow or arrow head, pointing to a structure; the questions will be based on that structure that is arrowed. Answer to be typed (with appropriate left and right location in the answer box as accurately as possible).
   b. In all type of questions, correct answer carries two marks; partially correct answer carries one mark; incorrect or unanswered questions / responses carry zero mark. There is no negative marking in any of the types.
   c. Total time allotted 120 minutes.
   d. Total marks 200.

3. **Resources** for preparation for the exam.

   a. ICRI teachings by ICRI, academic wing of IRIA: the world's longest teaching session in Radiology and Imaging at the lowest cost ever; anatomy component is taught on every Monday and Physics component on every Tuesday.

   b. Please register for the teaching sessions: all information available on iria.org.in and link sent in all social medial groups.

   c. In addition to teaching anatomy on every TUESDAY, there are exam question based sessions after every lecture ALMOST EVERY DAY.

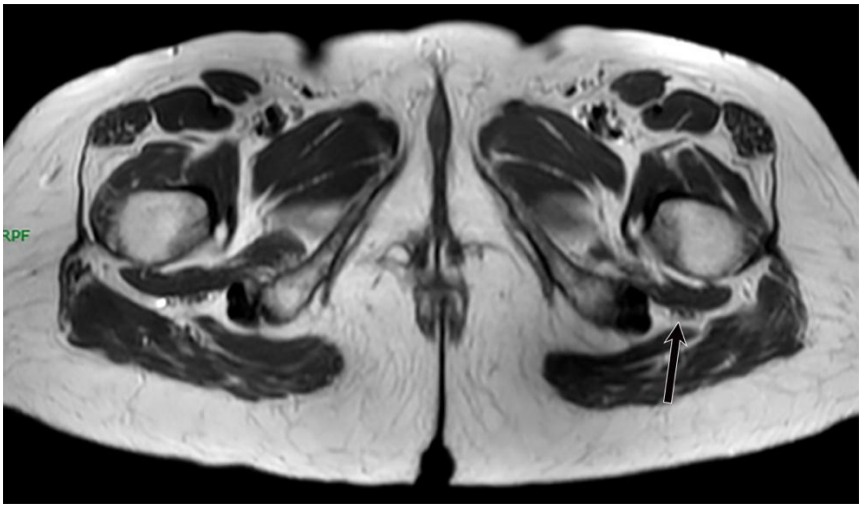
   d. Further MICR related exam preparation session on Sundays (please flyer for further details)

   e. Recommended books include: Radiological anatomy by Ryan & McNicholus, Atlas by Weir and Abrahams, Anatomy chapters in Text book of Clinical Radiology by IRIA/ICRI, Basic anatomy books, various videos related to anatomy available under google search, Scholarly articles on imaging anatomy at various journals, VIDEOS and e-journals.

   Examples of anatomy questions in the following pages

A: Image based Single best answer (SBA) questions

Sample Question 1.

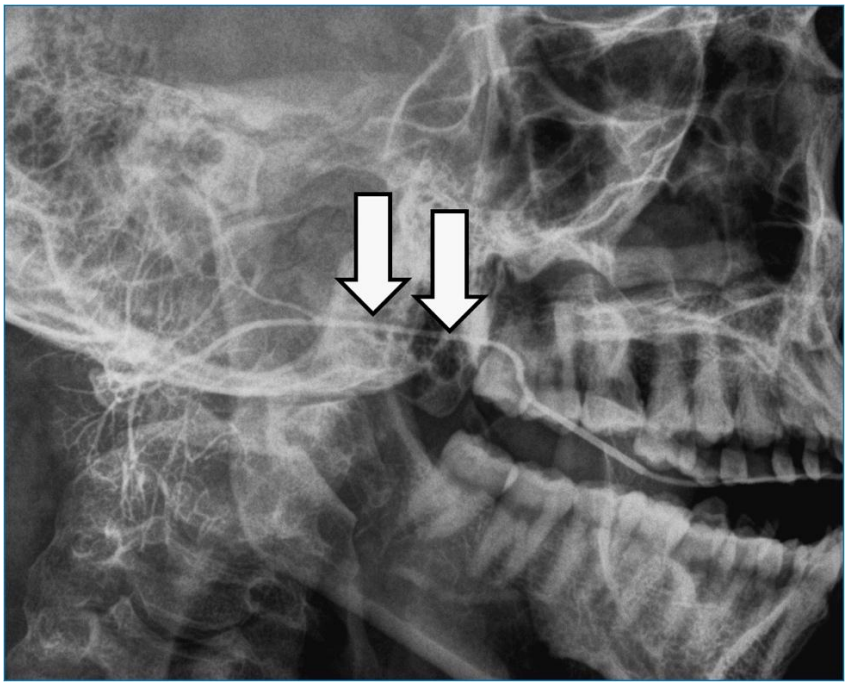


In the above given image, arrow points to which structure?

Answer (to be typed by candidate in the relevant box):

LEFT Sciatic nerve

Sample Question 2.



In relation to the arrowed structure drains which structure?

Answer is – parotid gland (to be typed in the answer box by the candidate during the exam)

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MICR step 1 - Module 2 Physics:

1. This examination, tests, the knowledge of candidate with respect to

    a. All basic Physics pertinent to all imaging modalities
    b. Radiation safety, regulations in Imaging and patient management.
    c. Application of physics in day to day scanning.

2. There is only one type of question in this nodule .

    a. **True or false type**: A statement or stem is given as a question followed by five responses; each response to be marked as true or false; correct marking of each response carries one mark; incorrect or unanswered responses will carry zero mark.

3. Resources for preparation for the exam.

    a. ICRI teachings by ICRI, academic wing of IRIA: the world's longest teaching session in Radiology and Imaging at the lowest cost ever; anatomy component is taught on every Monday and Physics component on every Tuesday.
    b. Please register for the teaching sessions: all information available on iria.org.in and link sent in all social medial groups.
    c. In addition to teaching physics on every Tuesday, there are exam question-based sessions after every lecture.
    d. Further MICR related exam preparation session on Sundays (please flyer for further details)
    e. Recommended books include: Radiological anatomy by Christenson's book of physics, Farr's physics for medical imaging, MRI in practice by Catherine Westbrook, Basic physics books, various videos related to physics available under google search/ you tube/various Radiology teaching sites, Scholarly articles on imaging anatomy at various journals and e-journals.
    f. **Exam preparation courses – free to attend:**
    ICRI also conducts exam preparatory courses prior to examination for all those applied or planning to apply for this exam; the process with be part of ICRI teaching session to separate course fees to be paid.

Sample questions for Module 2 Physics:

Sample question 1:Regarding Filtration :

a. It increases the number of photons in the beam
b. Inherent filtration is 2mm of Aluminium
c. K-edge of aluminium does not interfere with the spectrum
d. As per AERB , the total filtration is 2.5mm of aluminium equivalent , if the potential difference across the tube is greater than 100kV
e. It decreases the Half value layer of the beam

Answers:

a. **False** : Filters remove low energy photons, the total number of photons in the beam will be reduced
b. **False** : The Inherent filtration component is typically 0.5 – 1 mm aluminium equivalent
c. **True**
d. **True**
e. **False** : Filtration results in beam hardening (mean energy increases) , causing an increase in HVL

Sample question 2. Regarding Hounsfield unit (HU) and window settings

a. HU values generated by a CT scanner are only approximate
b. Fat has a CT number of -300
c. HU values of Grey matter and White matter are 20 to 30 and 35 to 45 respectively
d. Reducing the window width decreases the CT image noise
e. Window width determines the number of shades of grey

Answers:

a. True
b. **False:**The density and the approximate HU of Fat are 0.92g/cm^3 and −90 respectively
c. **False:** The density and the approximate HU of White matter: 1.03g/cm^3 and 30 respectively &that of Gray matter: 1.04g/cm^3 and40 respectively
d. False
e. True

-END.