



(University of choice)
**MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
(MMUST)**

UNIVERSITY EXAMINATIONS

2023/2024 ACADEMIC YEAR

FOURTH YEAR, SECOND, TRIMESTER EXAMINATION

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE IN CLINICAL MEDICINE, SURGERY AND COMMUNITY
HEALTH**

(Direct Entry)

COURSE CODE: HCM 418

COURSE TITLE: IMAGING SCIENCES (RADIOLOGY)

DATE: Wednesday 6th December 2023 TIME: 8:00am – 10:00am

INSTRUCTION TO CANDIDATE

Answer all questions,

Section A : Multiple choice questions (MCQ) (20 Marks)

Section B : Short answer questions (SAQ) (40Marks)

Section C : Long answer questions (LAQ) (40Marks)

TIME: 3 HOURS

MMUST observes ZERO tolerance to examination cheating

This paper consists of 7 printed pages. Please turn over. 

SECTION A MULTIPLE ANSWER QUESTION (20 MARKS)

1. In a normal chest x-ray at what level should the carinal line lie at.
 - A. The level of T3
 - B. The level of T5
 - C. The level of C7
 - D. The level of T7
2. Tracheal deviation may occur either towards the diseased side (PUSH) or away from the diseased side on a chest x-ray, which of the following is not caused by deviation away from the disease?
 - A. Pneumothorax
 - B. Large mass
 - C. Atelectasis
 - D. Pleural effusion
3. The loss of normal borders or sharp demarcations between thoracic structures in a chest x-ray is known as.
 - A. Silhouette sign
 - B. Lordotic
 - C. Effusion
 - D. Pneumothorax
4. The widening of the carina may occur due to the following EXCEPT
 - A. On inspiration
 - B. Enlarged left ventricle
 - C. Enlarged nodes
 - D. Enlarged left atrium
5. A patient has a clinical history of hemochromatosis which imaging modality is most effective in diagnosing this condition,
 - A. Magnetic Resonance
 - B. Ultrasound
 - C. CT-scan
 - D. Fluoroscopy
6. Patient with fish bone stuck in his esophagus enters the emergency room, what modification to standard esophagogram may be needed to locate the foreign body?
 - A. CT-neck
 - B. IV contrast
 - C. Endoscopy
 - D. Water soluble.
7. A J-shaped stomach that is more vertical and lower in the abdomen with the duodenal bulb at the level of L3-L4 would be found in a(n)
 - A. Hypersthenic
 - B. Asthenic
 - C. Sthenic
 - D. None of the above

8. The type of trauma to the head that is potentially sign of airway compromise
- Maxillofacial
 - TMJ
 - Zygomatic
 - Nasal bone
9.fractures are not always visible but blood in the sinus cavities suggests their presences.
- Fissures
 - Cranium
 - Skull base
 - Blow out
10. Which one of the following conditions is considered high risk for an iodinated contrast media procedure?
- Hematuria
 - Pheochromocytoma
 - Diabetetes
 - Hypertension
11. Extravasation is classified as a(n)..... reaction
- Organ specific
 - Mild
 - Moderate
 - Sever
12. The patient is sent for an ultrasound with a clinical history of constant/frequent involuntary passage of urine, this condition is also known as
- Micturition
 - Urinary reflux
 - Retention
 - Urinary incontinence
13. which one of the following conditions is a common pathologic indication for an IVU
- Sickle cell Anaemia
 - Multiple myeloma
 - Hematuria
 - Anuria
14. Below are some of the anatomy that will be seen on a PNS radiography EXCEPT
- Ethmoid sinus
 - Frontal sinus
 - Sphenoid sinus
 - Maxillary sinus
15. The most form of breast cancer is.
- Fibroadenoma
 - Infiltrative ductal carcinoma
 - Intraductal papilloma

D. Lobula carcinoma

16. which of the following tissue types would be found in the breast of a 35-year-old female who has borne two children

A. Fibro-glandular

B. Fibro-fatty

C. Fatty

D. cystic

17. Hip osteoarthritis is demonstrated with certain signs that are seen on the radiograph except

A. Loss of joint space in the superior weight bearing surface

B. Marginal osteophyte formation

C. Fracture

D. Sclerosis

18. The following are risk factors for osteoporosis EXCEPT

A. Excessive physical activity

B. Alcohol consumption

C. Low body weight

D. Low calcium intake

19. A patient with Monteggia fracture enters the emergency room. Which of the following positioning routines should be performed on this patient

A. AP and lateral thumb

B. PA and horizontal beam lateral wrist

C. AP and horizontal beam lateral lower leg

D. AP and PA and horizontal beam lateral forearm

20. Which one of the following conditions is characterized by "flattening of the hemidiaphragm?"

A. Pneumothorax

B. Pleural effusion

C. Emphysema

D. Pneumonia

SECTION B: SHORT ANSWER QUESTIONS (40 MARKS)

1. State advantages of x-ray compared to other modalities in diagnosing a patient. (5 marks)

2. Describe the difference between the Postero-Anterior view and the Antero-posterior view of a chest x-ray. (5 marks)

3. Describe THREE areas of special attention on radiation protection (6 marks)

4. a) Define the following urinary pathologies (5 marks)

i. Renal agenesis

ii. Anuria-

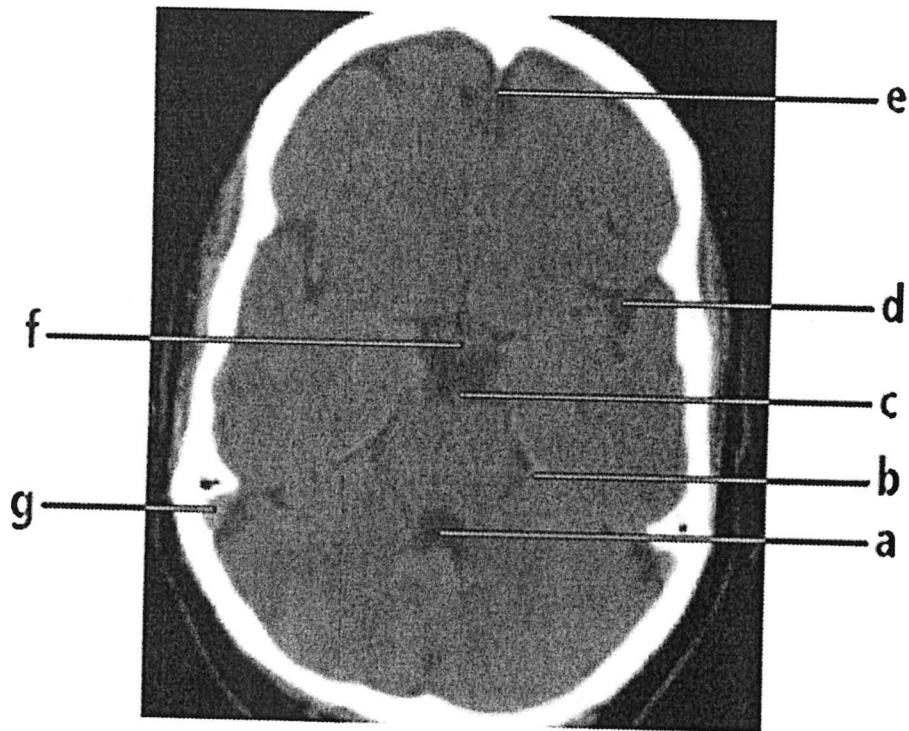
iii. Polyuria -

iv. Oliguria-

v. Urinary incontinence-

5. List ten steps of interpreting a head CT scan. (10 marks)

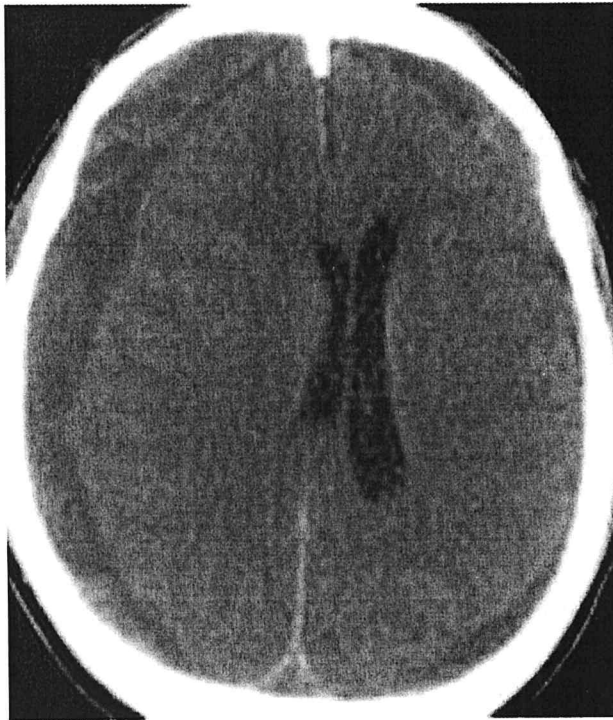
6. Below is an imaging procedure that was done on a patient name 5 structures shown on the diagram below (5 marks)



3a. Name these structures

a)

b What is the diagnosis in the image below(. 1 mark)



c).What are the CT- imaging finding/features of the above diagnosis.(3marks)

SECTION C LONG ANSWER QUESTIONS (40 MARKS)

1 a). Describe the following Genitourinary system specialized examinations

- i) a) Indications of IVU (6marks)
b) The kind of patients that IVU should be performed with a lot of caution.(4marks)
- ii). MCU indications (3marks)
- iii) HSG indications (3marks)
- b). Describe application of ultrasound in male genital system (4marks)

2. Describe two types of shoulder dislocation giving the radiological features suggestive of their occurrence (8marks)

b) Write short notes on the following condition on the upper extremity

- i. Humeral shaft fracture (3marks)
- ii. Olecranon fracture (3marks)
- iii. Supracondylar fracture(3marks)
- iv. Osteoarthritis in the hand (3marks)