

RADIODIAGNOSIS

PAPER – IV

Time : 3 hours

RDG/D/12/40/IV

Max. Marks : 100

Attempt all questions in order.

Each question carries 10 marks.

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| 1. | Describe the arterial anatomy of carotid vascular system with the help of labeled diagrams. Discuss the role of ultrasound and color Doppler imaging in evaluation of extracranial carotid occlusive disease. | 2+(2+6) |
| 2. | Describe the segmental anatomy of liver on cross sectional imaging. Discuss the role of triple phase CT in differentiating focal lesions in cirrhotic liver. | 4+6 |
| 3. | Briefly discuss the pathophysiology of osteomalacia. Describe the radiological findings in renal osteodystrophy. Enumerate the findings that help in differentiation from primary hyperparathyroidism. | 3+4+3 |
| 4. | Describe the construction of an X-ray tube with the help of a labeled diagram. Discuss the mechanism of production of X-rays. Enumerate the properties of X-ray. | 3+4+3 |
| 5. | Briefly describe the etiopathogenesis of choledochal cyst. Enumerate various types of choledochal cyst. Discuss the role of imaging in Caroli's disease. | 2+3+5 |
| 6. | Enumerate the indications of MDCT coronary angiography. Describe the methods to reduce the radiation dosage to patients during performance of MDCT coronary angiography. | 2+8 |
| 7. | Write short notes on:
a. Management of severe contrast reaction.
b. Nephrogenic systemic fibrosis. | 5+5 |
| 8. | Write short notes on:
a. Photoelectric effect and its role in production of radiographic image
b. Thermoluminescent dosimeter
c. Mammographic x-ray tube | 3+3+4 |
| 9. | Write short notes on:
a. Focused abdominal sonography for trauma
b. Pressure Injector | 5+5 |
| 10. | Write short notes on:
a. PC – PNDT Act
b. Conventional lead apron and zero lead apron. | 5+5 |

PAPER I

PART A

1. Define pulmonary oedema. What is its pathophysiology? Enumerate its causes. Describe the plain film radiographic findings in pulmonary edema. 1+2+3+4
2. Write imaging findings of the following: 4+3+3
 - a. Bronchial carcinoid
 - b. BOOP
 - c. McLeod's Syndrome
3. Define sarcoidosis. What are the various stages of thoracic sarcoidosis? Discuss the radiological manifestations of thoracic sarcoidosis. 2+2+6
4. Enumerate the causes of left atrial enlargement. Discuss its findings on a chest radiograph. What other imaging techniques will be useful in making the diagnosis? Briefly highlight the significance of each. 2+3+2+3
5. What is Eisenmenger Syndrome? Enumerate the conditions that may produce this syndrome. Discuss its key radiological features. 2+2+6

PART B

6. What do you understand by the term "extramedullary hematopoiesis"? Enumerate its causes. Discuss its plain film and cross sectional imaging findings. 2+2+(3+3)
7. What is "placenta accreta"? What are its types? Which imaging modalities would be useful in its diagnosis? Briefly describe the imaging features of each imaging modality? 1+1+2+6
8. Enumerate the factors that enhance the risk of ectopic pregnancy. What would be its classic clinical signs? Discuss the role of ultrasonography in its diagnosis highlighting the key imaging features. 2+2+6
9. Define contrast nephropathy. Who are the patients at risk? What is the mechanism at work? Outline its time course. What are the key recommendations to check its occurrence? 2+2+2+2+2
10. List the anatomical sites which may become afflicted in renal tuberculosis. Discuss their radiological features in brief. 2+8

II PAPER

PART A

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| 1. | What is osteoporosis? Enumerate causes of osteoporosis. Discuss any three imaging modalities currently in vogue for assessment of bone mineral density. | 2+2+6 |
| 2. | Classify neural tube closure defects of brain. Briefly describe types of Arnold Chiari malformation and discuss their imaging findings. | 2+2+6 |
| 3. | What are the key clinical features, common sites and radiological findings in Ewing's sarcoma? Discuss its differential diagnosis in brief. | (2+2+4)+2 |
| 4. | Discuss the etiology and characteristic imaging findings in 'ring-enhancing lesions' of the brain. | 3+7 |
| 5. | What are the common sellar and parasellar lesions? Describe the key radiological findings in craniopharyngioma on skull radiographs, CT and MR imaging. | 4+(2+2+2) |

III

PART B

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| 6. | Enumerate the causes of a solitary lytic lesion in the skull. Describe the distinguishing radiological features of any three. | 4+6 |
| 7. | Enumerate the common causes of obstructive jaundice. Discuss the role of various imaging modalities in its diagnosis. | 2+8 |
| 8. | The Child Welfare Board has referred an accused to you for estimation of age. Being a radiologist, how would you carry out this assignment? Discuss in brief the variables that can affect the estimated age. | 6+4 |
| 9. | Discuss the technique and role of CT in evaluation of acute pancreatitis. | 2+8 |
| 10. | A 40 year old male presents with a lump in the right iliac fossa. What would be your approach as a radiologist to help come to a diagnosis? Discuss the characteristic radiological features of any three pathologies, presenting with right iliac fossa lump. | 1+9 |

PAPER

PART A

Write short notes on:

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| 1. | Define strain & shear wave elastography. Discuss its role in breast, prostatic and musculoskeletal lesion. Compare its sensitivity and specificity with MR elastography. | 2+6+2 |
| 2. | Enumerate causes of painful limp in a child unable to bear weight. Briefly discuss role of plain X-ray, arthrography, US, CT, MRI & scintigraphy in arriving at diagnosis. | 2+2+1+1+1+2+1 |
| 3. | a. CT Vs MR Urography.
b. CT Vs MR Enteroclysis. | 5+5 |
| 4. | Discuss the role of contrast enhanced MR Imaging and organ specific MR contrast media. | 3+7 |
| 5. | a. Radio isotope scanning of the skeletal system.
b. Clinical applications of 3D & 4D ultrasound. | 5+5 |

PAPER

IV

PART B

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| 6. | Draw a neat line diagram of perinephric space including its relationship with other spaces. Write CT features of perinephric abscess and urinoma. | 4+(3+3) |
| 7. | Discuss the role of plain X-ray, CT and MRI in cases of lower cervical spinal trauma. | 3+4+3 |
| 8. | Discuss the role of scintigraphy in cardiac imaging with special emphasis on myocardial perfusion and viability. | 10 |
| 9. | Discuss the recent advances in MDCT. What are the various dose reduction techniques in MDCT? Mention average radiation dose received for common examinations using MDCT. | 4+4+2 |
| 10. | Discuss briefly the pathophysiology of pulmonary embolism. Give in detail the imaging modalities for diagnosis of this entity and their relative merits & demerits. | 4+(4+1+1) |

PART B

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| 6. | a. Rare Earth screen
b. Green Sensitive Film
c. Dual energy substractions | 3+3+4 |
| 7. | Define Roentgen. Mention various recommendations of maximum permissible dose for patients and staff members of the Radiology department. | 2+(4+4) |
| 8. | Enumerate various interactions of X-ray photons with matter. Discuss any two in detail with their significance in Radiology department. | 3+(3+4) |
| 9. | Discuss the following:
a. Bold Imaging
b. Genetic Screening
c. PACS in Radiology | 3+3+4 |
| 10. | Describe AERB guidelines for X-ray and CT installation. | 5+5 |

V

PART A

Write short notes on:

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| 1. | Describe the M.R.Anatomy of the shoulder joint. Briefly state the MR sequences you would employ to delineate various lesions of the shoulder joint. | 4+6 |
| 2. | Briefly discuss with diagram the anatomy of Circle of Willis. What are the causes of subarachnoid hemorrhage? Discuss the role of imaging in a case of subarachnoid hemorrhage. | 3+3+4 |
| 3. | a. Ossification of elbow joint and its clinical significance.
b. Fusion imaging | 5+5 |
| 4. | a. Principle of digital radiography.
b. Clinical applications of molecular imaging | 5+5 |
| 5. | a. MR Artefacts
b. CT Artefacts | 5+5 |

