

PART A

1. Abdominal radiograph shows pneumointestinalis in a 55 year old male patient. Enumerate various causes. Describe the role of MDCT and imaging features in 2 such conditions. 2+8
2. Draw a neat diagram showing the anatomy of retroperitoneum. What are various conditions affecting perinephric space. Describe imaging features in three such conditions. 2+2+6
3. What are the causes of painless hematuria in a 50 year old male patient? Discuss the imaging features and role of interventional radiology in two such pathologies. 2+(4+4)
4. Enumerate causes of first trimester bleeding. Discuss the imaging features to diagnose and follow-up such patients. 3+7
5. a) Placenta accreta – Pathophysiology and imaging findings. 5+5
b) Anomalous pancreatobiliary ductal junction and its complications.

PART B

6. a) von Meyenburg complex. 5+5
b) Imaging features of fibrolamellar HCC.
7. Ultrasound examination of a cirrhotic patient shows a solitary nodule in right lobe of liver. How would you investigate such a patient? Discuss in detail the role of CT, MRI and interventional radiology in such a case. 2+(3+3+2)
8. a) Vascular compression syndromes in abdomen and pelvis. 5+5
b) Intraductal papillary tumours of pancreas.
9. Enumerate various complications of acute and chronic pancreatitis. Describe briefly the imaging features and role of interventional radiology in these conditions. 2+(4+4)
10. a) Renal tuberculosis – Imaging features. 5+5
b) Biliary atresia.

DNB RADIOLOGY JUNE 2015

PAPER - I

Time : 3 hours Max.
Marks : 100

PART A

Write short notes on:

1. a) Enumerate various neurocutaneous syndromes.
b) Aetiopathogenesis, imaging features and associations of Sturge-Weber syndrome. 2+(2+4+2)
2. Cystic lesions of posterior fossa and their differential diagnosis. 2+8
3. Various osseous changes seen in neurofibromatosis. 10
4. Causes of paravertebral shadow in lumbar region and their differential diagnosis. 2+8
5. a) How do you classify orbital masses?
b) Enumerate various causes of orbital masses.
c) MR features of orbital pseudotumours. 1+3+6

PART B

6. Staging and imaging features of juvenile nasopharyngeal angiofibroma. 4+6
7. a) Enumerate different varieties of osteosarcoma.
b) Imaging features of various surface osteosarcomas. 3+7
8. a) Pathophysiology of different types of hyperparathyroidism.
b) Imaging features of primary hyperparathyroidism. 4+6
9. a) MR anatomy of knee joint.
b) Role of MRI in evaluation of meniscal injuries. 4+6
10. Causes of demyelinating lesions of spinal cord and their imaging features. 3+7

Time : 3 hours Max. Marks : 100

PART A

Write short notes on:

1. a) Causes of mediastinal lymphadenopathy.
b) Role of imaging in their differentiation. 3+7
2. An adult male presents with recurrent chest infections and a cavitating lung lesion in left lower zone in a chest radiograph. Discuss the differential diagnosis and imaging features in two most likely causes. 2+4+4
3. Causes of pleural masses and their imaging features. 3+7
4. a) Anatomic location and patterns of diaphragmatic rupture.
b) Role of imaging in its evaluation. 3+7
5. a) Enumerate various heart diseases with cyanosis and increased pulmonary circulation.
b) Imaging features in any two such diseases. 2+4+4

PART B

6. a) Role of different imaging modalities in evaluation of a case of limb ischemia.
b) Role of interventional procedures in these patients. 8+2
7. a) Enumerate causes of thoracic aortic aneurysm.
b) Role of CT angiography in diagnosis and management of aortic dissection. 2+(4+4)
8. Aetiopathogenesis, clinical forms, complications and radiological features of silicosis. 2+2+2+4
9. a) Define Pulmonary Hypertension.
b) Enumerate its causes and describe the imaging findings. 2+(2+6)
10. a) Venous anatomy of lower limb with the help of a diagram.
b) Technique of Colour Doppler imaging of lower limb veins and imaging features of deep vein thrombosis.

3+(3+4)

PAPER - III

RDG/J/15/40/III

Time : 3 hours

Max. Marks : 100

PART A

Write short notes on:

1. Imaging techniques and findings in a case of Budd Chiari Syndrome.
4+6
2. Techniques to evaluate the stomach and imaging features of stomach malignancies.
3+7
3. a) Enumerate various neuroendocrine tumors of pancreas.
b) Characteristic features of these on various imaging modalities including the role of radio-nucleide imaging.
2+(6+2)
4. A young adult male presents with painless testicular mass. What is the differential diagnosis and imaging features in the most common cause?
2+8
5. Pathophysiology and imaging features in small bowel lymphoma.
4+6

PART B

6. Ultrasound in a 35 year old female shows a right adnexal cystic mass.
 - a) What are the likely causes?
 - b) Algorithmic approach & imaging features in these causes.2+8
7. a) What are the various causes of bilateral adrenal masses?
b) Characteristic features in different imaging modalities in two such causes.
2+(4+4)
8. a) Imaging and interventions in vascular complications of pancreatitis
b) Imaging features of multicystic dysplastic kidney
5+5

9. a) Pathogenesis and imaging features of xanthogranulomatous pyelonephritis.
b) Imaging features of abdominal lymphangioma

5+5

10. a) Normal anatomy of placenta.
b) What are the different types of abnormal placental implantation?
c) Role of imaging in placenta accreta.

2+2+6

PAPER - IV

RDG/J/15/40/IV

Time : 3 hours

Max. Marks : 100

PART A

Write short notes on:

1. Advances in technology to reduce radiation to a patient during 10 radiography.
2. Clinical applications and techniques of fat suppression in MR 10 imaging.
3. Principles of perfusion CT and quantification of tumor perfusion 10 parameters. 10
4. Management of acute idiosyncratic contrast reactions.
5. a) What is the principle of MR contrast enhancement?
b) Describe any two organ specific contrast agents and their clinical applications.

2+4+4

PART B

6. Indications, technique and complications of uterine artery embolization.
7. Advances in ultrasound transducer technology.
8. a) Fusion imaging. b) ELORA.

2+6+2

10

9. a) Zero lead aprons. 5+5
- b) Spatial compound imaging.

10. Advances in MR gradient technology and its advantages. 5+5

10

DNB RADIOLOGY APRIL 2016

PAPER – I

RDG/APRIL/16/40/I

Time : 3 hours
Max. Marks : 100

Write short notes on:

1. a) Radiological features of osteopenia on a plain radiography.
- b) Various imaging modalities used in the assessment of bone mineral density. 3+7
2. Various radiological findings in multiple myeloma and its differential diagnosis. 6+4
3. Radiological findings in primary hyperparathyroidism. 10
4. a) Radiological anatomy of sella turcica.
- b) Imaging evaluation of a suspected pituitary tumor. 3+7
5. Imaging findings of pleomorphic adenoma. 10
6. a) Enumerate the various neurocutaneous syndromes.
- b) Various imaging findings in a case of neurofibromatosis II. 3+7
7. a) Draw a diagram of cross sectional anatomy of inner ear.
- b) Imaging workup in a child presenting with congenital sensorineural hearing loss. 3+7
8. a) Enumerate various spinal dysraphism.
- b) Pathology and imaging findings in diastematomyelia. 2+8
9. Differential diagnosis of unilateral proptosis in a child.

- 10
10. a) Enumerate the various mucopolysaccharidosis.
 b) Radiographic findings in Morquio syndrome.
- 2+8

PAPER – II

RDG/APRIL/16/40/II

Time : 3 hours
 Max. Marks : 100

Write short notes on:

1. a) Enumerate various pathologies which can be found in posterior mediastinum.
 b) Imaging findings of posterior mediastinal tumors in children.
3+7
2. a) Chest radiographic findings of pulmonary edema.
 b) Radiological differences between cardiogenic and noncardiogenic pulmonary edema.
6+4
3. Grading, imaging appearances and complications of pancreatic trauma.
3+4+3
4. Role of MRI in the evaluation of breast masses.
10
5. a) Role of ultrasound in the evaluation of a suspected vascular malformation.
 b) Role of interventional radiology in low flow vascular malformations.
5+5
6. a) Enumerate etiologies of diffuse cystic lesions of lung.
 b) Radiological findings in any two of them.
2+(4+4)
7. a) Enumerate the causes of hemoptysis b) Role of interventional radiology in its management.
2+8
8. Causes and imaging findings in a neonate presenting with respiratory distress.
10
9. a) Differential diagnosis of acute pelvic pain in a young female patient.
 b) Imaging findings of ovarian torsion.
4+6
10. a) Define solitary pulmonary nodule and enumerate its causes.
 b) Role of dynamic CT in the evaluation of solitary pulmonary nodule.
(1+4)+5

PAPER – III

RDG/APRIL/16/40/III

Time : 3 hours
Max. Marks : 100

Write short notes on:

1. Role of MRI in evaluation of a suspected case of endometrial carcinoma. 10
2. Role of imaging in a post renal transplant patient. 10
3. a) Classification of choledochal cyst.
b) Enumerate its various complications and the role of imaging in their diagnosis. 2+(2+6)
4. a) Segmental anatomy of liver-Labeled diagram.
b) Role of MRI in evaluation of a nodule in cirrhotic liver. 3+7
5. Role of imaging in a young male presenting with acute scrotal pain. 10
6. a) Differential diagnosis of multiple colonic polyps.
b) Role of double contrast barium enema in its evaluation. 4+6
7. a) Radiological differences between gastric carcinoma and lymphoma.
b) Role of imaging in the staging of gastric carcinoma. 5+5
8. Role of ultrasound and MRI in the evaluation of morbidly adherent placenta. 5+5
9. Imaging manifestations of renal lymphoma and its differential diagnosis. 6+4
10. a) Role of imaging in intraductal papillary mucinous tumor of pancreas.
b) Enumerate the criteria for malignancy. 7+3

PAPER – IV

RDG/APRIL/16/40/IV

Time : 3 hours
Max. Marks : 100

Write short notes on:

1. a) Positioning and technique for apicogram.
b) Magnification radiography. 5+5
2. a) Principles of radiation protection.
b) Define various radiation units and give maximum permissible dose for radiation workers. 4+(3+3)
3. a) MR spectroscopy in breast.
b) MR spectroscopy in prostate. 5+5
4. Indications, contraindications and technique of intra-arterial thrombolysis for acute stroke. 3+3+4
5. a) Role of CT perfusion in hepatic tumors.
b) Role of CT perfusion in pancreatic tumors. 5+5
6. a) Iso-osmolar contrast agents.
b) Classify MR contrast agents.
c) Nephrogenic systemic fibrosis. 3+3+4
7. Radiological evaluation of skeletal maturity for bone age estimation.
- 10 8. Role of radionuclide imaging in renal disorders. 10
9. a) PET-MR
b) MR guided interventions. 5+5
10. Role of perfusion and diffusion MRI in post chemotherapy evaluation. 5+5

DNB RADIOLOGY JUNE 2016

PAPER – I

RDG/J/16/40/I

Time : 3 hours

Max. Marks : 100

Write short notes on:

PART A

1. a) Anatomy of cranio-vertebral junction (CVJ).
b) Enumerate various diseases affecting CVJ.
c) Imaging features of traumatic injuries in this region. 3+2+5
2. Various MR techniques and imaging features in diagnosis of bone marrow disorders. 5+5
3. Radiological findings in:
a) Dermatomyositis
b) Lipoma arborescens 5+5
4. a) Classify AV malformation in brain.
b) Imaging features and interventions in AV malformation of brain. 2+(4+4)
5. a) Draw a diagram of cross sectional anatomy of inner ear.
b) Imaging work-up in a child presenting with sensorineural hearing loss.

PART B

6. Role of radiographs, CT and MRI in diagnosis of various spinal tumors.
7. a) Bare orbit sign.
b) Fungal infection of paranasal sinuses 2+4+4
8. a) Basic principle and technique of MR spectroscopy.
b) Its role in differentiating various brain tumors. 5+5
9. a) Pathophysiology of hyperparathyroidism.
b) Imaging findings in a case of primary hyperparathyroidism. 4+6
10. Role of plain radiograph, ultrasound and MRI in congenital dislocation of hip. 4+6

3+3+4

Time : 3 hours

Max. Marks : 100

Write short notes on:

PART A

1. a) Enumerate various causes of right upper lobe collapse. 2+(4+4)
 b) Imaging features on plain radiographs and CT in such a case. 2+3+5
2. Radiological findings of coarctation of aorta on a plain radiograph, barium contrast study and DSA. 7+3
3. Role of scintigraphy in cardiac imaging with emphasis on myocardial perfusion and viability.
4. a) Classify diaphragmatic hernias. 2+8
 b) Radiological techniques to establish the diagnosis with relevant imaging findings. 5+5
5. Imaging features and differential diagnosis of silicosis.

PART B

6. a) Penile arterial flow physiology. 3+(4+3)
 b) Technique and utility of duplex sonography in evaluation of erectile dysfunction. 2+4+4
7. a) Define Doppler effect.
 b) Color Doppler and Power Doppler modes.
 c) Role of RI and PI in Doppler imaging. 8+2
8. a) Role of various Doppler parameters in diagnosis and management of a case of IUGR.
 b) Significance of aortic isthmus index. 1+2+7
9. a) Define pulmonary sequestration.
 b) Types of pulmonary sequestration.
 c) Imaging findings in a case of pulmonary sequestration.
10. a) Define truncus arteriosus.
 b) Mention its type and characteristic features of its various types.
 c) Its chest radiographic, Echocardiographic and MRI

findings.

1+3+(2+2+2)

PAPER – III

RDG/J/16/40/III

Time : 3 hours

Max. Marks : 100

Write short notes on:

PART A

1. a) Enumerate causes of hypertension in a 10-year-old male.
- b) Outline radiological approach in such a case.
- c) Role of MDCT in renal hypertension.

2+3+5

2. a) Imaging features and role of various diagnostic modalities in a case of cholangiocarcinoma.
- b) Role of radiological interventions in its management.

7+3

3. Role of imaging in uraemia, citing the specific role and limitation of conventional radiography, sonography, CT, MR

and renal scintigraphy.

4. Role of plain radiography, enteroclysis, ultrasonography, CT and MRI in evaluation of small bowel obstruction.

2x5

5. a) Enumerate the conditions under which the revised PNDT Act, 2010 permits you to conduct prenatal diagnostic techniques.
- b) What steps would you take in clinical ultrasound practice to comply with the Act?

2x5

PART B

4+6

6. a) Define abnormal endometrial thickening.
- b) Enumerate its causes and discuss their imaging features.

2+(2+6)

7. a) List various causes of female infertility.
- b) Role of HSG, US and MRI in their evaluation.

2+(2+3+3)

8. a) List various causes of bleeding in first trimester.
- b) Discuss their sonographic features.

2+8

9. a) MRI and MRS findings in prostatic carcinoma and its staging.
- b) Role of TRUS biopsy.

(4+4)+2

10. a) Enumerate various ovarian tumour of stromal origin.
 b) Imaging features of serous and mucinous cystadenoma, and cystadenocarcinoma.

2+(4+4)

PAPER IV

RDG/J/16/40/IV

Time : 3 hours

Max. Marks : 100

Write short notes on:

PART A

1. a) Define various radiation units.
 b) What are the maximum permissible doses of radiation for general public and radiation workers?
 c) Ways to reduce radiation exposure during fluoroscopy. 3+3+4
2. Role of radionuclide imaging in renal disorders. 10
3. Principle and clinical applications of diffusion tensor imaging. 5+5
4. a) Anatomy of rotator-cuff in shoulder.
 b) Role of MRI in SLAP lesions. 5+5
5. Photoelectric effect and its application in diagnostic radiology. 10

PART B

6. Enumerate various MR contrast media. Mention briefly their mechanism of action. 4+6
7. Principle and clinical applications of ultrasound elastography. 5+5
8. a) What are the current indications and limitations of foetal MRI?
 b) Technique of doing foetal MRI. 5+5
9. a) What are different components of PACS? Discuss one role of each component. 6+4
 b) What are advantages and disadvantages of PACS?

10. a) Define contrast-induced nephropathy (CIN).
 b) Various risk factors associated with CIN.
 c) What precautions can be taken to prevent CIN?

2+4+4

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DNB RADIOLOGY DECEMBER 2016 PAPER – I PART A

1. A 36-year-old woman presents with progressive deafness and tinnitus in the left ear. She undergoes magnetic resonance imaging of the brain, which demonstrates a 2cm mass at the left cerebellopontine angle. Enumerate the differential diagnosis, write the key imaging findings for each possible entity.

2+8

2. A 28-year-old man presents with a history of recent head injury and unilateral, painful, pulsatile exophthalmos with reduced visual acuity. a) What possibilities would you consider? b) What imaging protocol would you adopt for this patient, and why? c) Enumerate the key imaging findings for the likely entity.

2+3+5 3. MR findings in a patient of suspected multiple sclerosis.

1

4. A 26-year-old man presents with pain in the jaw. An orthopantomogram demonstrates a radiolucent lesion in the mandible. Write the differential diagnosis using an algorithmic approach while citing the key imaging findings for any 2 possible conditions.

2+(4+4)

5. A 30-year-old woman with a past medical history of spontaneous pulmonary embolus presents two weeks after giving birth with severe headache, vomiting and drowsiness. a) What imaging protocol would you follow for this patient, and why? b) What would be the key imaging findings?

3+

7 PART B

6. A previously well 62-year-old woman sustains a subcapital fracture of the left neck of femur following a fall onto the hard ground. The plain film reveals multiple lytic lesions within the pelvic bones and proximal femur.

a) How would you evaluate her as a radiologist?

b) Write the differential diagnosis, enumerating the key imaging features of any 2 conditions.

2+(2+6)

7. a) Enumerate the components of the rotator cuff of the shoulder.

b) Imaging findings in a patient with rotator cuff tear.

2+

8. A 3-year-old child presents with fever, bleeding from the gums and bone pain. His wrist radiograph demonstrates lucent metaphyseal lines in the distal radius and ulna. Write the differential diagnosis, enumerating the imaging features of any two likely pathologic conditions which may present with this clinico-radiological picture.

2+8

9. Enumerate the conventional radiographic patterns of bone destruction. List differential diagnosis of each.

10

10. State in brief the imaging appearance and clinical significance of the following signs in musculoskeletal imaging: a) Fallen fragment sign b) Bone within a bone sign

c) Shiny corner sign

d) Rugger jersey spine

2.5x

4 *****

PART A

1. A 32-year-old man presents to his family physician with cough, fever and increasing shortness of breath. A chest radiograph reveals the presence of symmetrical hilar masses. The masses have a lobulated and well defined outline with some fine calcification. The only significant element in this man's occupational exposure history is he is fond of keeping birds as pets in the house. Write the differential diagnosis in this clinico-radiological setting, detailing the chest CT findings in any two likely conditions.
2. Write the characteristic features of Primary and Post primary pulmonary tuberculosis on a chest radiograph, while elucidating the role of CT in determining disease activity. 2+8
3. a) Draw a labeled diagram depicting the segmental anatomy of the left lung. 3+3+4
 b) Classic radiographic features of left upper lobe collapse on a chest radiograph. 5+5
4. Radiological features of: 5+5
 a) Total anomalous pulmonary venous connection (TAPVC)
 b) Hyaline membrane disease 5+5
5. A 78-year-old patient undergoes an endovascular aortic aneurysm repair (EVAR).
 a) Outline the current reference standard post-EVAR surveillance imaging drill that the patient requires as a part of his routine follow-up.
 b) Enumerate the potential complications with their key imaging findings which need to be recognized and appropriately reported during the follow up. 4+6

III

PAPER

PART B

6. Enumerate the causes of acute right upper quadrant pain and imaging (USG & CT) findings in two common conditions.

2+8

7. a) Define the role of imaging in renal trauma.

b) How are the renal injuries graded? Briefly portray the imaging findings in diverse types of renal injuries.

2+(3+5)

8. a) Define a solitary pulmonary nodule.

b) Morphological and functional imaging evaluation of solitary pulmonary nodule.

9. Role of Color Doppler Flow Imaging (CDFI) in portal hypertension.

2+8

10. a) Define acute respiratory distress syndrome.

10

b) Write the imaging findings of acute respiratory distress syndrome on chest radiography, lung ultrasound and computed tomography and the respective role of these modalities in its diagnosis and management.

1+9

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RDG/D/16/40/III

PART A

PAPER – IV

1. A 40-year-old man is suspected to have developed a small bowel perforation.
 - a) Enumerate its possible causes.
 - b) How would you evaluate this patient?
 - c) State the specific imaging features of any two such pathologic conditions, which may produce small bowel perforation.

 2. Imaging findings in chronic pancreatitis and differentiation of focal mass in chronic pancreatitis from carcinoma of pancreas. 2+3+5

 3.
 - a) Spectrum of imaging features in primary small bowel lymphoma. 7+3
 - b) Tabulate the correlation between histopathological and radiological findings.

 4. Role of current imaging techniques in the localization and characterization of acute gastrointestinal bleeding. 8+2

 5. Role of imaging in the diagnosis and management of gall bladder cancer. 10
- 10

V

PART B

6. a) Multiparametric MRI in evaluation and staging of prostate cancer.

b) Role of TRUS biopsy.

7. a) Differential diagnosis for a complex cystic renal lesion.

b) Imaging findings in any two clinical entities which are categorized as heritable multifocal cystic renal disease.

8+2

8. A 26-year-old man presents with fever, dysuria, dull lumbar pain, microscopic haematuria and sterile pyuria. Considering the most likely diagnosis in this setting, what would be the possible findings on an intravenous pyelography examination?

5+5

9. a) What do you understand by the term “pelvic inflammatory disease” (PID)?

b) Role of diverse imaging modalities in a suspected case of PID.

10

c) State the key imaging findings in Fitz-Hugh-Curtis Syndrome.

10. a) Enumerate the types of morbidly adherent placenta along with the predisposing conditions.

b) Key imaging findings on ultrasound (including CDFI) and MRI.

2+6+2

PAPER

2+(4+4)

PAPER – VI

PART A

1. a) What are subarachnoid cisterns?
b) What is their clinical significance during imaging?
c) Name any six subarachnoid cisterns stating their anatomical location. 1+3+6
2. What are the various regulatory controls exercised by the Atomic Energy Regulatory Board for setting up and maintenance of medical diagnostic radiology equipment in India?
3. a) With reference to imaging, what do you understand by the term “elastography”? 10
b) List the key components of MR elastography.
c) What are the relative strengths and limitations of ultrasound and MRI-based elastography techniques in staging liver fibrosis?
4. Role of radionuclide imaging in thyroid and parathyroid disorders.
5. a) Define contrast-induced-nephropathy. 2+3+5
b) What are its proposed mechanisms?
c) What measures would you take in a patient affected with type 2 diabetes and systemic hypertension to safeguard against contrast-induced-nephropathy? 5+5

PART B

6. a) What is “bone age”? 2+3+5
b) What are the clinical applications of its determination?
c) Factors which can affect the bone age of a person.
d) How reliable is bone age from the standpoint of forensic radiology?
7. a) Mammography tube - differences with conventional X-ray tube. 1+2+4+3
b) Aliasing on colour Doppler and its application.
8. Role of perfusion imaging, diffusion-weighted imaging and MR spectroscopy in the diagnosis and classification of common intraaxial brain tumors in adults. 5+5

VII

9. a) Percutaneous trans-hepatic biliary drainage.
b) Chi Square test & its usefulness in clinical research.

10

5+5

10. a) Side effects of gadolinium based compounds.
b) How does the safety profile vary with compound structure?
c) What new concerns have been raised against them which might act as a deterrent in their usage even in patients with normal renal function?