

FINAL EXAM  
JUNE 2012

NATIONAL BOARD OF EXAMINATIONS

**RADIODIAGNOSIS****PAPER- I**Time: 3 hours  
Max. Marks : 100

RDG/J/12/40/I

Attempt all questions in order.  
Each question carries 10 marks.

1. Enumerate causes of unilateral hyper-translucency on chest radiograph. Briefly describe plain radiographic and CT findings in a 5 year old child presenting with repeated chest infection and detected to have unilateral hyper-translucency on chest radiograph. 2+4+4
2. Enumerate causes of unilateral and bilateral inferior rib notching. Describe chest radiographic, CT chest and angiographic findings in Coarctation of Aorta. Briefly discuss role of interventional radiology in management of Coarctation of Aorta. 2+(2+2+2)+2
3. Classify pleural tumours. Briefly discuss chest radiographic & CT findings of malignant mesothelioma. 3+3+4
4. Enumerate various diseases caused by inhalation of inorganic dust. Briefly describe chest radiographic & CT findings of two most common such diseases. 2+4+4
5. Classify congenital cardiac abnormalities. Briefly discuss abnormalities of Situs and Looping (or topology) with their imaging features. 2+4+4
6. Define truncus arteriosus. Mention its types and characteristic features of its various types. Briefly describe its chest radiographic, echocardiographic & MRI findings. 2+2+(2+2+2)
7. How do pulmonary arteriovenous malformation present clinically? Discuss their chest radiographic, CT chest and angiographic findings. Briefly mention role of interventional radiology in their treatment. 2+(2+2+2)+2

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8. What are common causes of medially placed ureters? Discuss various associations, IVU, CT & MRI findings of retroperitoneal fibrosis. 2+2+2+2+2
9. Enumerate causes of urethral strictures. Briefly discuss role of ascending urethrogram in strictures due to trauma. Name common complications of urethral strictures. 3+5+2
10. Enumerate various ovarian tumors of stromal origin. Briefly discuss imaging features of serous & mucinous cystadenocarcinoma and cystadenoma. 3+2+2+3

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**RADIO DIAGNOSIS****PAPER- II****Time: 3 hours**  
**Max. Marks : 100****RDG/J/12/40/II****Attempt all questions in order.**  
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1. Name the diseases associated with H. pylori infection. Briefly discuss barium meal features of benign & malignant gastric ulcer supported by suitable diagrams. 2+(4+4)
2. Enumerate various infections & neoplasms affecting gastrointestinal tract in AIDS. Briefly describe barium meal follow through & CT features of AIDS lymphoma. 3+7
3. Classify polypoidal lesions of the colon. Mention radiological differences between benign & malignant polyps. Discuss salient imaging features of various types of adenomatous polyps. 2+3+5
4. Enumerate causes of normal intracranial calcifications. Discuss imaging features of pathological intracranial calcification secondary to infections & infestations. 3+7
5. Enumerate causes of spinal canal stenosis. Mention normal CT measurement of spinal canal at various levels. Describe plain radiographic, CT & MRI features of spinal canal stenosis. 2+2+(2+2+2)
6. Enumerate various causes of suprasellar lesions in adults and children. Describe plain radiographic, CT & MRI features of Craniopharyngioma. 4+6
7. Classify scoliosis. Discuss imaging features of plain radiographic, CT & MRI in neurofibromatosis of spine. Discuss Cobb's angle and draw a diagram illustrating its measurement. 2+5+(2+1)

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8. Mention causes of periosteal new bone formation. Briefly discuss characteristic radiological features of osteomyelitis affecting infants, children & adults. 2+8
9. Mention differential diagnosis of 15 year boy presenting with localized pain & swelling of 2 months duration in right lower thigh. Discuss conventional radiographic, CT & MRI features of the commonest primary malignant bone tumor in this age. 1+3+3+3
10. Classify cysts of jaw. Describe briefly imaging features of each type of cyst. Draw suitable diagrams to describe various types. 2+6+2

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**RADIO DIAGNOSIS****PAPER- III****Time: 3 hours**  
**Max. Marks : 100****RDG/J/12/40/III****Attempt all questions in order.**  
**Each question carries 10 marks.**

1. Enumerate indications and radio-isotopes used for radionuclide (2+2)+(2+2+2)  
scanning of lungs. Briefly describe three techniques of isotope  
imaging of lung with their clinical implications.
2. A 25 year old male presented with life threatening haemoptysis. Draw 2+(2+4+2)  
an algorithm to outline management of such a case. Discuss in brief  
role of chest radiograph, CT scan (with newer advances) and role of  
interventional radiology.
3. How will you radiologically investigate a 60 year old hypertensive & 3+5+2  
diabetic female presenting with severe chest pain of acute onset?  
Briefly discuss imaging features of the most common cause for it. Also  
describe role of radiology in its complications.
4. Enumerate the most common cause of a 6 year old male presenting 1+7+2  
with hepatomegaly, ascites & features of portal hypertension. Discuss  
imaging modalities employed to investigate such patients along with  
various imaging features. Briefly mention role of interventional  
radiology in its management.
5. Enumerate causes of malabsorption syndrome. Describe imaging 2+6+2  
features in tropical sprue. Briefly discuss its complications.
6. Describe principle of ultrasound elastography and its clinical (4+3)+3  
applications. Briefly discuss its usefulness in evaluation of BIRAD 3  
lesions.

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7. Describe technique of Multi-detector Computed Tomography (MDCT) & imaging findings in an 80 year old male presenting with lower gastrointestinal bleeding. Briefly discuss its therapeutic implications. Draw a suitable algorithm outlining role of investigative modalities. 3+5+2
8. Describe various fetal Doppler parameters used to assess fetus at risk of IUGR. Discuss recent advances as regards their significance in predicting fetus at risk. 6+4
9. Discuss differential diagnosis and imaging features of painless, expansile lesion involving single rib in an adult. 3+7
10. Describe technique of TRUS guided biopsy of prostate. Briefly mention role of contrast imaging in investigation & biopsy of a prostatic lesion. 8+2

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**RADIODIAGNOSIS**  
**PAPER- IV****Time: 3 hours**  
**Max. Marks : 100**

RDG/J/12/40/IV

**Attempt all questions in order.**  
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1. Classify right sided aortic arch abnormalities. Draw suitable diagrams to describe these anomalies. Discuss imaging features in dysphagia lusoria. 2+5+3
2. Describe normal gastroesophageal junction with the help of suitable diagram. Label various rings and lines visualized on double contrast barium swallow. Discuss imaging features of Schatzki's ring. 6+2+2
3. A 15 day old infant has presented with prolonged conjugated hyperbilirubinemia accompanied by non pigmented stools. Name the possible etiology. Describe imaging features and various associations that may be seen in such a case. 1+(6+3)
4. Enumerate benign hepatic masses. Describe imaging features (USG, CT, & MRI) of two commonly encountered such lesions. 2+4+4
5. Briefly describe embryological development of pancreas. Describe various anomalies & variations in its development with the help of suitable diagrams. Discuss imaging features (on barium meal & CT scan) of annular pancreas. 4+3+3
6. Describe various measures to reduce radiation exposure to patients as well as personnel performing fluoroscopically guided vascular interventional procedures in DSA Lab. 10

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7. Write short notes on: 3+3+4
- A. Heel effect
  - B. Genetic effect of radiation
  - C. Conventional lead apron & zero lead apron
8. Write short notes on the following: 4+3+3
- a. Factors affecting scatter radiation and different techniques to minimize them.
  - b. Radiographic contrast
  - c. Properties of x-rays
9. Write short notes on: 4+2+2+2
- a. What is p value? What is its significance and clinical applications in research?
  - b. Sensitivity
  - c. Specificity
  - d. Positive & negative predictive value.
10. Discuss various statutory requirements to be followed for installation of 4+3+3  
following radiological equipments:
- a. 1000 mA x-ray machine
  - b. CT scan
  - c. DSA Lab

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