SEPTEMBER 2003

D.M.R.D. Examination

RADIO DIAGNOSIS

First Paper

[Time : 3 Hours] [Max. Marks : 100]

Note: Attempt all questions.

1. Discuss the principles of MR Angiography and compose the same with CT Angiography.

2. How would you perform a Double Contrast Barium Enema? What is the recent equipment advances that has helped in improving the diagnostic accuracy of Barium Enema?

3. Discuss the role of IV Contrast media in modern day radiodiagnosis.

4. Describe in detail the process of developing the exposed X-ray film. Explain the role of chemicals used in this process.

Diploma in Medical Radiology – Diagnosis

DMRD Examination – Paper III

[Time : 3 Hours] [Max. Marks : 100]

Note: Attempt all questions.

1. Discuss the role of radiological evaluation in abdominal tuberculosis.

2. Discuss the imaging approach to emergencies encountered during third trimester of pregnancy

3. Discuss the role of imaging in obstructive jaundice.

4. Write short notes on:

   a. Ante-natal detection of renal anomalies
   b. MRI of prostate
   c. PET

Diploma in Medical Radiology – Diagnosis

DMRD Examination – Paper II

[Time : 3 Hours] [Max. Marks : 100]

Note: Attempt all questions.

1. Discuss the Imaging of Pituitary.

2. Elaborate the role of various imaging modalities in AIDS of CNS?

3. Discuss the radiology of Portal Hypertension

4. Write short notes on:-

   a. Biophysical profile
   b. Avascular necrosis of femur
   c. Neurofibromatosis

Diploma in Medical Radiology – Diagnosis

DMRD Examination – Paper I

[Time : 3 Hours] [Max. Marks : 100]

Note: Attempt all questions.

1. What are the factors influencing radiograph quality? Discuss the ways to improve the quality of a radiograph.

2. What are grids? Describe the principle, construction and types of grids. Discuss the role of grids in diagnosis radiography.

3. Describe the steps you would take in a diagnostic department to control and reduce radiation doses to the patient and the worker.

4. Write short notes on:-

   a. MRI Sequences
   b. PACS
   c. Mammography films

Total No. of Questions: 4 Total No. of Pages: 1

2252-12

D.M.R.D. - III

RADIODIAGNOSIS & RADIOLOGICAL TECHNIQUES

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions carry equal marks.*
3) *All questions are compulsory.*

1. Discuss the role of imaging in posterior fossa tumors in adult.

2. Classify cystic lesions of kidney. Describe the radiological and imaging findings in the condition.

3. Discuss the role of imaging in Acute Pancreatitis.

4. Write short notes on the following:

   a. HRCT
   b. USG Contrast medium

c. Tele radiology

1177

JULY 2002

D.M.R.D. Examination

RADIO DIAGNOSIS

First Paper

[Time : 3 Hours] [Max. Marks: 100]

Note: Attempt all questions.

1. Draw a line diagram of Television system coupled with Image Intensifier and discuss its functioning and application.

2. Write on "Applied Physics of Intensifying screens in the production of Radiograph".

3. Describe in brief the principles of color flow mapping. (Color Duplex Sonography)

4. Discuss principles and technique of spiral CT and compare it with CT before it was introduced.

Total No. of Questions: 4 Total No. of Pages: 1

2252-11

D.M.R.D. - II

RADIODIAGNOSIS & RADIOLOGY PAPER - II

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions carry equal marks.*
3) *All questions are compulsory.*

1. Discuss the role of radiology and imaging in obstructive jaundice.

2. Describe the CT appearances in a case of craneocerebral trauma.

3. Describe the embryological development and imaging appearances in ventricular septal defect.

4. Write short notes on the following:-

   a. CT density
   b. Giant cell tumour
   c. Focal hyper echoic lesions in liver

Total No. of Questions: 4 Total No. of Pages: 1

2252-10

D.M.R.D.
RADIODIAGNOSIS PAPER - I
PHYSICS AS APPLIED TO MEDICAL RADIOLOGY

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions carry equal marks.*
3) *All questions are compulsory.*

1. Describe the physical aspects of various generations of computed tomography. How does the helical CT differ from other types of CT.

2. Describe the principles of physics involved in duplex Doppler.

3. Describe the anatomy of cerebrospinal fluid pathways. Briefly describe the technique involved in detection of hydrocephalus.

4. Write short notes on:-

   a. Attenuation of radiation
   b. Heel effect
   c. Grids

Total No. of Questions: 4 Total No. of Pages: 1

2354-12

D.M.R.D.

RADIODIAGNOSIS PAPER - III

RADIODIAGNOSIS & RADIOLOGICAL TECHNIQUES

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions carry equal marks.*
3) *All questions are compulsory.*

1. Discuss the role of Radiology and Imaging techniques for diagnostic approach in a case of paraplegia.

2. Discuss Radiology of hand as a mirror of various diseases.

3. Discuss the role of radiological evaluation in abdominal tuberculosis.

4. Write short notes on:-

   a. Ante-natal detections of renal anomalies
   b. Apicogram
   c. Compare and contrast peripheral Venography and Doppler Sonography

Total No. of Questions: 4 Total No. of Pages: 1

2354-11

D.M.R.D. - II

RADIODIAGNOSIS PAPER – II
DIAGNOSTIC RADIOLOGY

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions carry equal marks.*
3) *All questions are compulsory.*

1. Describe in brief the physiology of digestion and absorption. Discuss the radiological diagnosis of "Malabsorption Syndrome"

2. Discuss soft tissue calcification

3. Discuss the Imaging of Pituitary?

4. Write short notes on:-

   a. Biophysical Profile
   b. Paget's Disease
   c. Dopper Imaging of the Penis.

Total No. of Questions: 4 Total No. of Pages: 1

2252-10

D.M.R.D.
RADIODIAGNOSIS PAPER - I
PHYSICS AS APPLIED TO MEDICAL RADIOLOGY

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions carry equal marks.*
3) *All questions are compulsory.*

1. Describe in detail the principles of ultrasound and its modern application.

2. Discuss the various interaction of radiation with the matter and their relative significance in diagnostic radiology.

3. What are the factors influencing radiograph quality? Discuss the ways to improve the quality of a radiograph.

4. Write short notes on:

   a. MRI Sequences
   b. Artifacts in Doppler Techniques
   c. Radiation decay

October 2003
D.M.R.D. (PART - II) Examination
PAPER - III

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) Neat diagrams must be drawn wherever necessary.
2) Answer all questions.

1. Describe the radiological features in head injury. **25**

2. Ultrasonography of foetal G.I.T. **25**

3. Write short notes on:- **50**

   a. Intracranial meningioma
   b. Congenital dislocation of hip
   c. Angio lipoma
   d. Multiple myeloma

October 2003
D.M.R.D. (PART - II) Examination
PAPER - II

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) Neat diagrams must be drawn wherever necessary.
2) Answer all questions.

1. How will you investigate a case of anterior mediastinal mass? **25**

2. How will you investigate a case of primary infertility? **25**

3. Write notes on:- **50**

   a. Coarctation of aorta
   b. Fluorosis
   c. Giant cell tumour
   d. Ectopic pregnancy

October 2003
D.M.R.D. (PART - II) Examination
PAPER - I

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *Answer all questions.*

1. Describe radiographic anatomy of mediastinum. Discuss imaging of ant. Mediastinal masses. **25**

2. Discuss the imaging in abdominal tuberculosis **25**

3. Write notes on:- **50**

   a. Diaphyseal Achalasia
   b. Maffuci Syndrome
   c. Pericardial effusion
   d. Views to visualize paranasal sinuses.

October 2003
D.M.R.D. (PART - II) Examination
PAPER - II

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *Answer all questions.*

1. Describe the construction rotating anode x-ray tube. How does the focus of an x-ray tube affect the quality? **25**

2. What are the ingredients of developer and describe the function of each? **25**

3. Give a brief account of physics of ultrasonography and construction of ultrasound transducer. **25**

4. Write notes on: **25**

   a. Intensifying screens
   b. Replenisher
   c. Phosphorescence and fluorescence
   d. Magnification technique

Total No. of Questions: 4 Total No. of Pages: 1

2454-12

D.M.R.D.

RADIODIAGNOSIS PAPER - III

RADIODIAGNOSIS & RADIOLOGICAL TECHNIQUES

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions carry equal marks.*
3) *All questions are compulsory.*

1. Write in detail the principles of various Doppler modes of Doppler Sonography. Describe it's role in Antenatal examination.

2. Discuss the role of imaging in pancreatitis.

3. Discuss the role of imaging in Blunt Abdominal Trauma.

4. Write short notes on:

   a. Ultrasound Biomicroscopy (UBM)
   b. Acoustic Neuroma
   c. Film artifacts

Total No. of Questions: 4 Total No. of Pages: 1

2454-11

D.M.R.D. - II

RADIODIAGNOSIS PAPER – II
DIAGNOSTIC RADIOLOGY

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions carry equal marks.*
3) *All questions are compulsory.*

1. What are various causes of intracranial calcification? Describe imaging findings in various tumors having calcification.

2. Discuss the role of imaging in 50 years male with haematuria.

3. Discuss the role of imaging in AIDS involving the CNS.

4. Write short notes on:

   a. Large pituitary fosses.
   b. Leiomyoms of GI tract.
   c. Unilateral proptosis.

Total No. of Questions: 4 Total No. of Pages: 1

D.M.R.D.
RADIODIAGNOSIS PAPER - I
PHYSICS AS APPLIED TO MEDICAL RADIOLOGY

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions carry equal marks.*
3) *All questions are compulsory.*

1. Discuss the principle and applications of spiral CT and enumerate it's advantage over conventional CT.

2. Discuss the principle of computerized Radiography and it's advantage.

3. Discuss the role of I.V. contrast media in diagnostic radiology and imaging.

4. Write short notes on:

   a. Attenuation of Radiation.
   b. Radiography of Zygomatic arch.
   c. Image intensifier.

RADIODIAGNOSIS PAPER - III

RADIODIAGNOSIS & RADIOLOGICAL TECHNIQUES

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions are compulsory.*

1. Discuss the role of radiology in portal hypertension.

2. Enumerate the causes and discuss imaging of increased bone density.

3. Write notes on:

   a. Gout
   b. Expansion of sella tursica
   c. Metaphyseal lucent bands
   d. Osteogenic sarcoma

RADIODIAGNOSIS PAPER - II

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions are compulsory.*

1. Discuss imaging in thromboembolism.

2. How will you investigate a patient with hypertension?

3. Write notes on:

   a. Sonography in 1st trimester
   b. Deep vein thrombosis
   c. Spina ventosa
   d. Cysticercosis of brain

D.M.R.D.
RADIODIAGNOSIS PAPER - I
PHYSICS AS APPLIED TO MEDICAL RADIOLOGY

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *All questions are compulsory.*

1. How will you investigate a case of obstructive jaundice?

2. Describe radiographic anatomy of male urethra and various modalities to image the same.

3. Write notes on:

   a. Radiographic views for interval auditory meatii.
   b. X-ray findings in metral valvulor disease
   c. Ulcerative colitis
   d. Avascular nectosis

D.M.R.D. (PART - I) Examination
PAPER - II

Time: 3 Hours *Max. Marks: 100*

Instructions to the Candidates:

1) *Neat diagrams must be drawn wherever necessary.*
2) *Answer all questions.*

1. Describe the processing of X-ray film after an exposure. Discuss recent advances in same.

2. What are artifacts? Describe measures to reduce the same.

3. What are radiation hazards? What are measures available for protection against the same?

4. Write notes on:

   a. TLD
   b. Non-screen films
   c. Macro-radiography
   d. Characteristic curve

M 4595
DOCTOR OF MEDICINE
EXAMINATION 2004
Radiodiagnosis
Paper Second

Time : 3 hours Max. Marks 100

1. What are the causes of acute pancreatitis? Describe in detail radiological & imaging findings of acute pancreatitis and its complication.
2. What are the chest manifestations in AIDS. Describe the role of imaging in detection of chest lesions in AIDS.
3. Write short notes on:
   i. Posterior urethral valves.
   ii. Doppler ultrasound in post renal transplant evaluation.
   iii. PNDT Act
   iv. USG for 1st trimester of pregnancy.

PHYSICS

1. Discuss the basic principles of CT and advantage of spiral CT.

2. Write briefly on the following:
   i. Artifacts in ultrasound
   ii. Rare earth screens
   iii. TLD
   iv. Radio Isotopes

3. Write short notes on:
   i. Focused grid
   ii. Compton scattering
   iii. Mammography

4. Write short notes on:
   i. DSA
   ii. Conray

5. Basic principles of MRI

6. Basic principles of Image intensifier

7. Describe in brief type of x-ray films and therein construction

8. Constituents of developer and their function

9. Describe CT artifacts

10. Describe radiation protection measures taken in X-ray room

11. Write short notes on:
   i. Fluoroscopy
   ii. Non-ionic contrast media and clinical application

12. Discuss the following:
   i. Hazards of radiation
   ii. Types of transducer
   iii. Tomography

iv. Pressure injector

13. Discuss the following:
    i. Automatic processor
    ii. Ingredients of developer and fixer and action of each.
    iii. MMR

14. Write short notes on:
    i. B mode real time ultrasound scan
    ii. Xero radiography

15. Write short notes on:
    i. Safe lighting
    ii. Filters
    iii. Thermo lunciniscent dosimeter
    iv. Scattered radiation

16. Describe in detail the factor which influence the radiographic contrast and detail

17. Write short notes on :
    i. X-ray tube functioning
    ii. Cone down view
    iii. Developer
    iv. Spiral CT

18. Describe how the following are useful in diagnostic radiology:
    i. Inverse square law
    ii. Anode heel
    iii. Film artifact
    iv. Fixer
    v. Intra oral film

19. Write short notes on:
    i. Intensifying screen
    ii. Grid
    iii. Curnlineur transducer
    iv. PET
    v. CT vs MRI

20. What is radiographic image? Discuss various factors which affect the radiographic image quality and contrast.

21. Advantages and disadvantages in DSA. Discuss the principles of DSA.

22. What are isotopes? Enumerate the common isotopes used in Radiodiagnosis with their half life.

23. Write short notes on:
    i. Paramagnetic contrast agents
    ii. Gomma Camera

24. Basic principles of hiterohipsy

25. Write short notes on:
    i. Ommipaque
    ii. Thamography
    iii. Digital radiography
    iv. Possible health hazards in MRI

26. Describe the recent advances in contrast media.

27. Describe the technique and principles of processing radiographic films

28. Write short notes on:
    i. Metrizamide in diagnosis
    ii. CT scanning – its principles and uses.
    iii. Doppler shift

29. Discuss briefly the principles, merits and demerits of MRI

30. Write short notes on:
    i. Latest contrast media
    ii. P^{32} in Radiodiagnosis
    iii. Subtraction

31. Write a note on unsharpness in skiography.

32. Write a note on intensifying screen and fluoroscopic screen

33. Write a note on diagnostic radioactive isotopes scanning

34. Write a note on subtraction technique.

35. Write a note on processing of a film in dark room. Write in short about automatic processor.

36. Write a detailed note on different types of intensifying screen.

37. Write an essay on radiation protection in the department of Radiodiagnosis.

38. Describe working of an image intensifier.

39. Write a detailed note on rotating anode x-ray tube.

40. Write a note on ultra sonography.

41. Write a note on ideal dark room. Write in short automatic processor.

42. Write a note on image intensifier with closed circuit television.

43. Write an essay of MMR.

44. Write an essay on Radiation Hazard. How will you immunize them to public & staff working in the dept. of Radiodiagnosis.

45. Discuss the role of radioactive isotopes in diagnosis. Describe in detail subtraction technique in scanning.

46. What are the principles of computer assessed tomography? Describe the value of contrast augmented radiographs with their procedure.

47. Short notes on:
    i. Maximum permissible dose.
    ii. Construction of high tension generator

48. Compare the advantages and disadvantages of CT scan and MRI modalities.

49. Short notes on:
    i. Construction of x-ray films
    ii. Collad Santigraphy
    iii. Moving grid
    iv. Inherent hivation

50. Short notes on:
    i. TGC (Time Gain Compensation)
    ii. X-ray beam restriction
    iii. MDM (Magnetic Dipole moment)

51. MRI contrast opents

52. Short notes on:
    i. Maximum Rafalix ceramic (MRC) x-ray tube
    ii. Possible health hazards during NMR imaging
    iii. Spin-spin relaxation time (T2)
    iv. Spin lattice relaxation time (T1)
    v. The characteristics of pieze electric crystals
    vi. Light beam diaphragm
    vii. Capacitor discharge generators
    viii. Heel effect
    ix. Radiation units
    x. Rectification
    xi. X-ray tube focal spots
    xii. Types of x-ray generators

53. Describe the phenomena of Radioactivity. Name the common radioactive isotopes used in diagnostic procedure, highlighting their merits and limitations in various argue system.

54. Short notes on:
    i. Biological aspects of radiation protection
    ii. HR Angiography
    iii. 3 phase generators
    iv. Collimation of x-ray beams

55. Discuss:
    i. Basic interactions between x-ray and matter
    ii. Interaction between ultrasound and matter.

56. What are the physical principles used in the application of ultrasound in medicine?

57. Short notes on:
    i. Rectilinear scanner
    ii. Soft tissue radiography
    iii. Ultra sonography
    iv. Body section radiography
    v. Lomisation and its application
    vi. CT number
    vii. Define: Ohms Law, Kirch half's Law, Electric field

58. What are your recommendations for the construction of an ideal dark room for manual processing of x-ray films? How will you equip fee room?

59. How heat is produced in the x-ray tube and what measures are taken to cool the tube?

60. What do you know about film artifact and how do prevent it?

61. Describe important factors to get good radiographic image.

62. What is rectification? What is half-wave and full wave rectification? What are different rectifiers?

63. Short notes on:
    i. Define Biot-servant Law. What is the magnetic field at the centre of a circular of radius 'r' , number of turns 'n' and carrying current I amperer.
    ii. Calculate the resistance of a 100 volt 200 volts bulb. How heat will be developed it used for 1 hour.
    iii. Describe with circuit diagram the various types of rectification.
    iv. Grid
    v. Rotating anode
    vi. Electron
    vii. Under developed film
    viii. Film Badge
    ix. X-ray tube rating
    x. Secondary radiation
    xi. Anode
    xii. Potter Bury
    xiii. Image intensifier

64. Describe an ideal x-ray tube working a full wave rectification.

65. Describe the radiation effects on (i) blood (ii) Gonads and intensifier

66. Short notes on:
    i. Foreign body localization by fase shift method
    ii. Radioactive Phosphorous P32 in therapy
    iii. Rectal decimeter
    iv. Radiation beam direction dence
    v. Effect of radiation on blood
    vi. Autotransformer
    vii. Rotating anode
    viii. Chemical leg and light leg of films
    ix. High KV diagnostic radiology

x. Photofluorography
xi. Fluorescent screen
xii. Mass miniature radiography
xiii. Characteristic curve
xiv. GM counter

67. What do you understand by:
    i. Contrast
    ii. Sharpness in radiography

    Describe the factors that influence these

68. Describe the basic principles of computer assisted tomography. How does it differ from conventional tomography?

69. Draw a well labeled diagram of a modern x-ray tube. Describe the sequence of events which occur in the production of x-ray

70. Describe the various types of interaction of radiation with matter.

71. What is meant by ractope, amperage and wattage? What relationship they have to each other and how they can be measured. Discuss their application.

72. What is meant by photographic effect and how does it vary with change in MA & KV applied to the x-ray tube, time of exposure and target to film distance. Describe the factors responsible for producing a good roentgenogram.

73. Short notes on:
    i. Reducing solution
    ii. Replemister
    iii. Xero radiography
    iv. Comptoms effect and pair production
    v. Film speed
    vi. Pass box window

74. What are the courses of unsharpness in radiographic image? What ways do you adopt to make the image sharp?

75. Describe in detail various chemical constituents and in functions of developer and fixer used in dark room of your x-ray departments to process the x-ray films.

76. Discuss the various protective devices from radiation

77. How x-ray are produced? Illustrate your answer with suitable diagram and discuss luminescent properties.

78. Why rectification is necessary for production of x-ray? How would you get full wave rectification?

79. Describe various methods of radiation production. What do you understand by the terms maximum permissible radiation dose?

80. Draw a labeled diagram of Image intensifier. Describe its working and advantages.

81. Write a neat diagram of diagnostic x-ray tube and show the electrical connection.

82. Explain the usefulness of grid and bulky in diagnostic radiology.

83. Write a detailed note as filter. What is HVL (Half Value Lazer) and what is **exponebal** law.

84. How do you prevent the secondary radiation to the patient?

85. Short notes on:

i. Kanotron
ii. Umbra Penumbra
iii. Inverse square law
iv. Lonising chamber
v. Critical angle and total internal reflection
vi. Cooling of x-ray tube
vii. Half life
viii. Serial cassette charge on
ix. Roentgen
x. Phosper
xi. Lomistion chamber

86. What are the advantages of:

i. Anode heel
ii. Automatic film processor
iii. Pressure injectors

87. Give an outcome of diagnostic x-ray machine installation.

88. Describe in brief the properties of Alpha, Beta and Goma rays

89. Define the following radiation units
   i. **Sievent**
   ii. **Cure**
   iii. RBE
   iv. G ray
   v. Rem

90. Solve the problem
   i. An x-ray tube is operated at 50,000 volts. Calculate the maximum wave length of x-ray emitted.
   ii. The exposure rate from a fluoroscopic machine is SR/min at 50 cm. What are the exposure rates at 100 cm, 80 cm and 40 cm.
   iii. The two films are transmitting **1020** and the other transmitting 120 of the incident radiation. What is the resultant transmission if both the films are super-imposed? What is the corresponding density?

91. What are your suggestions to improve the life of modern xray film?

92. Describe how are the following useful in diagnostic radiology:
   i. Inverse square law
   ii. Anode heel
   iii. Film artifact

93. Describe the composition of x-ray film. How does it differ from an ordinary photographic film? How is an image formed an x-ray film?

94. How there following are useful in diagnostic radiology? (a) Lead (b) Litmas paper (c) Starch (d) Rotating anode

95. What are the basic principles of the transformer? What is the role of tea transformer in diagnostic radiology?

96. Short notes on:
   i. Photo electron
   ii. Sulphur collord
   iii. Gun monitor
   iv. Silver halider
   v. Focal spot
   vi. Thermegraphy
   vii. Nuclear radiation
   viii. Cones
   ix. K edge
   x. Florescence and its applications in radiology

xi. Hot and cold areas
xii. Head bricks
xiii. Contrast media
xiv. Radium **pasaing**
xv. Telepaque
xvi. 1^{131}
xvii. Piezoelectric crystals
xviii. Indices in spectral Doppler
xix. Duplicating films
xx. Artifacts in computed Tomography
xxi. Quality assurance in diagnostic x-ray imaging
xxii. Cineflurography
xxiii. Advances in dark room (film processing technique)
xxiv. Types of ultrasound transducer
xxv. Grid ratio
xxvi. Silver recovery
xxvii. Transformer lesser

97. Describe the uses of Technetium – 99

98. Describe briefly the advantages of the ionic contrast media in relation to some contrast media

99. Discuss the non-invasive techniques in Diagnostic Imaging.

100. What is the role of gamma camera and rectilinear scanning in nuclear scanning?

101. What is attenuation of radiation? Discuss the factors on which attenuation of x-ray depends?

102. Compose mannal and automatic film processing giving advantage and disadvantages of both?

103. Discuss the factors affecting the quality of a radiograph. What are the advantages of Digital Radiography?

104. Discuss the factors affecting the resdution of a CT Scan.

105. Describe the evolution of x-ray films and draw a caselled diagram showing the construction of a duplitied radiographic film. How does grain size affect the speed and the detail resdution of such a film?

106. Define and discuss the properties of x-ray

107. Describe the principles involved in CT scanning. Discuss the evolution of CT Scanners to their present day status.

108. Describe the various parts of a film characteristic curve. What is average gradient and how will you calculate it?

109. Describe the basic principles of MRI. Describe the main components of MRI equipment.

110. Discuss the basic principles involved in the use of contrast media in various diagnostic imaging modalities. Enumerate the contrast media used in CT and MRI.

111. Discuss the physical principles involved in Real time imaging. Describe the sonographic anatomy of Liver.

112. Discuss the geometrical factor influencing the radiographic image.

113. Short notes on:
    i. CT injector
    ii. Principles of Doppler
    iii. Larmour frequency
    iv. Phased array real time ultrasound transducer
    v. Magnification technique
    vi. Pantomography
    vii. Thermo ionic emmision
    viii. Scintillation detector
    ix. House field unit
    x. Hayers
    xi. Ammilitation radiation
    xii. Wedge film
    xiii. Non screen cassettes
    xiv. Dynamic scan
    xv. CRAP (Computerized tomography during anterial pentography)
    xvi. Digital Luminescence radiography (DLR)
    xvii. MR contrast apents
    xviii. SPECT Scanning
    xix. MR spectroscopy
    xx. Ultrasound contrast media
    xxi. Spiral CT d its major applications
    xxii. **Introrenam** DSA
    xxiii. Compose CT and MR **mydig**
    xxiv. Computers in Radiology

xxv. Spiral angiography
xxvi. Power Doppler
xxvii. Factors affecting tissue contrast MR imaging
xxviii. Teleradiology
xxix. Digital imaging
xxx. Physiologic ------ of MR
xxxi. Automatic film processor
xxxii. Spiral CT angiography

114. Discuss the principles underlying the acquisition of T1 & T2 weighted images by **magnetic resonance** imaging

115. Describe ionization and scintillation. How are these principles uses in detection of radiation? Describe the scintillation detector in and explain how it helps in imaging orpans in modern imaging techniques.

116. Describe the common film faults. How do you prevent them?

117. Describe the CAT scan artfacts with particular details of the "Partial Volume Phenomenon"

118. Describe in detail the basic principles involved in ultrasound imaging. What physical factors influence the choice of transducer?

119. Define "Density" and contrast in a film. What is the characteristic curve of a film? Enumerate the basic difference between the conventional x-ray film and films used in other imaging modalities.

120. Describe the role of contrast media in CT Scan.

121. Describe what you understand by quality and quantity of x-radiation and the methods to measure it.

122. Describe the physical principles of Body section radiography. Discuss its usefulness in diagnostic radiology.

123. What do you understand by high KV radiography? Discuss the merits and demerits of the technique and its application in Radiodiagnosis.

124. Write short notes on:
i. Skyline new
ii. Pelimetry
iii. Skeletal survey

125. Describe the IV contrast media used in radiology.

126. What is positive contrast in radiography? What are the positive contrasts used for diagnostic purposes? Discuss the application of the such media in Radiodiagnosis of various systems.

127. Describe in brief the evolution of radiographic contrast media to their present station. Discuss the factors which determine their toxicity.

128. Write a short essay on the rate of radio isotopes in diagnostic radiology.

129. Describe the clinical application of multipower reconstruction and have dimensional imaging of computerized tomography.

130. What are the different modes of ultrasound? Where are they used? Describe the physics of mechanics.

131. What is contrast definition, density and detail in a radiograph. Discuss the factors affecting item.

132. What happens when a x-ray beam strikes a **das** of matter interpend in its path. Explain fully.

133. What is radio activity? Give in then the account of the radioactive substones used in diagnostic radiology.

134. Give the account of thermionic emission. What is its practical application in x-ray tube? Describe in detail the construction working, advantages and disadvantages of a rotating anode tube.

135. Define the units 'R' 'Rad' and 'Rem'. Describe the brief methods of measurements of radiation.

136. Short notes on;
   i. Kyniography
   ii. Electromegnetic spectrum
   iii. Transformer rating
   iv. Full wave rectification
   v. Ballatic
   vi. Currents
   vii. Ommipaque
   viii. Canray 420

137. Describe how x-rays are produced? Describe a Coolidge tube. How does it differ from a gas tube? Draw diagram.

138. Discuss the physical and clinical factor which determine the quality of grain

139. Describe the physical aspects of scatted radiation in diagnostic radiology and principles of their contrast

140. Describe the phenomenon of photoelectricity. What is its practical application to radiography?

141. Describe the electromagnetic spectrum. Discuss the origin and the properties of various components

142. Discuss the physical factors influencing:
    i. Percentage depth dose
    ii. Percentage back scatter
    iii. How is percentage depth calculated

143. What are the methods of measurement of x-ray dosage? How is ionisation of air used in measurement of x-ray dosage? Describe an techimeter

144. Describe the construction and explain the principle of a simple attenuating current generator. Explain the action of a split commutate
145. Describe the action of a Hermiasic value. Describe a method of determining the characteristics of a triads valve. Discuss amplifying action of a triads valve

ENDOCRINOLOGY

1. Describe normal anatomy of suprarenal glounds. How will you investigate a case of suprarenal tumour?

2. Describe the radiological feature of hyper parathyradism

3. Describe the anatomy of the pancreas and its radiological importance in tumour of pancreas.

4. Discuss the cause of thyroid entargement. How will you investigate such a case.

5. Write short notes on:
    a. Phaeochromocytoma
    b. Hyper thyroidism
    c. Radiology of thyroid in discase

6. Describe the radiological feature of cretuism

7. What investigations you will undertake in a case of carcinova head of pancreas. Discuss various investigations and radiological appearances in such a case.

8. Discuss the investigation undertaken to investigate lesion of the pancreas. Supplement your answer with suitable diagrams of the radiological appearance.

9. Short notes on:
    a. Epiphysis in endocrine disease
    b. Thyroid uptake studies
    c. Radioactive isotopes used in scanning of pancreas.

10. Describe the radiological anatomy of pituitary tossa. What are the radiological feature of acromegaly?

11. How would you investigate with radiological and imaging technique a solitary module in thyroid gland.

12. Discuss various radiological findings in Pituitary
    a. Plain films
    b. CT
    c. MRI

13. Short notes on:
    a. Lodine 131
    b. Isotope scanning of pancreas
    c. Acromegaly
    d. Thyroid scan
    e. Adreval gland
    f. Albrights syndrome
    g. Radiographic procedure to investigate pancreas

14. Describe the anatomy of the suprareval gland and how do you investigate a case of tuberculosis of suprareval gland.

15. Describe the methods and the value of radio nuclide study of the thyroid?

16. Describe the imaging modalities in the study of the thyroid gland

17. How do you investigate a case of ectopic thyroid?

18. What are the causes of generalized dincimited density of bones and describe the radiological features of hyper parathyroidism

19. How do you investigate a case of Hyxoedema?

20. Discuss the role of radiology in diabence?

21. Short notes on:
    a. Evaluation of zaitre in by imaging
    b. Rate of ultrasound in thyroid discase
    c. USG of parathyroid

22. Discuss the role of MRI in hyper parathyroidism

23. Discuss the pathophysiology and radiological features in primary and secondary hyper parathyroidism.

RESP

1. Discuss the role of radiology in imaging of mediastiral tumours.

2. Discuss the patho radiology of pulmonary adema

3. Branchopulmonary segments radiographic anatomy.

4. Write short notes on:
    i. Meuiscus sign
    ii. Anterior mediastiral mass
    iii. Hamman Rich Syndrome
    iv. Consemital lesion of lung

5. Describe the radiological features of Bronchogenic Carcinoma.

6. Write short notes on
    i. Sequestrated lung
    ii. Radiological findings in chronic braichitia
    iii. Rheunatoid lung discase
    iv. Pheumothorax

7. What are the cell types of carcinoma lung? Describe the radiological appearances of carcinoma lung.

8. Briefly discuss the following aspects of bronchogenic carcinoma:

    i. Various investigations employed to establish the diagnosis and operability
    ii. Etiology and predisposing factors
    iii. Plain skiagram appearances of central tender carcinoma and a periphenal maligrant solitary lesion
    iv. How does CT help to provide further information in a suspected case

9. Write short notes on:

    i. Injuries to the lung
    ii. Pulmanary infarch
    iii. Pulmonary bone
    iv. Azzges lobe

10. Discuss the pathology and various radiological manifestation of childhood primary pulmonary tuberculosis.

11. Write short notes on:
    i. Icerly's liver
    ii. Apical cardotic view
    iii. Role of US and CT in pleural malignancy
    iv. Mdead Syndrome

12. Radiology of acute respiratory distress syndrome

13. Role of CT in pulmonary malignances

14. Lung charges in systemic diseases

15. Respiratory distress syndrome

16. Anterior mediastival masses in children

17. Write short notes on:
    i. Kartageners syndrome
    ii. Pulmonary sequestratia
    iii. Pneunocouisoses
    iv. Aspergilloses of lung

18. What are the causes of bronchial occlusion? Discuss the radiological findings of pancoast tumour

19. Short notes on:
    i. Superior mediastival syndrome
    ii. Ribs
    iii. Diagnostic ultrasound evolution in chest
    iv. Pulmonary sarcoidosis
    v. Coin shadow in lung

20. Discuss the differential diagnosis and complications of large canty in the right upper lobe.

21. What are the possible causes of respiratory distress in a new born? How will you proceed to investigate such cases and arrive at a possible diagnosis?

22. Describe the course of diaphogmatic eleration

23. Role of CT in laryngeal tumour

24. Short notes on:
    i. Kymphongotis carcinomatoas
    ii. Vanishing lung
    iii. Pancoast tumour
    iv. Adult respiratory distress syndrome
    v. Congenital diaphragmatic hernias
    vi. Ultrasound features of tubercular pleural effusion

25. Role of MRCT in interstitial lung disease

26. Short notes on:
    i. Pleural effusion
    ii. Radiographic technique chest lateral decubitus
    iii. Lung changes in mitral stenosis

iv. Radiological evaluation of POST OPERATIVE CHEST
v. Pleuropentoreal hernia

27. Give an account of salient radiological features of Bronchogenic carcinoma. Discuss briefly the role of CTin staging of bronchogenic carcinoma.

28. Describe the anatomy of broncho pulmonary segments. What are the bronchographic findings of carcinoma brondus and bronchiechasis.

29. Short notes on:
    i. Pulmonary alveolar microliteniosis
    ii. Sub pulmonary encysted effusions
    iii. Pulmonary base
    iv. Lamellar effusion
    v. Pleural transdate

30. Describe the radiological features of extra pulmonary manifestation of bronchogenic carcinoma

31. Describe the anatomy of superior mediastinum and how do you investigate a case of mediastiral obstruction syndrome.

32. Describe the indications for Bronchogram and radiological features of bronchiectasis

33. Discuss the radiological differential diagnosis of a lesion in the lung.

34. With a neat and labeled diagram, write the anaromy of lung roots. Discuss in short the differential diagnosis of abnormalities of hilar shodous.

35. Describe ventilation and perfusion studies in using radio isotopes and their role in the pulmonary disease.

36. Describe the radiological features of primary carcinoma of lung

37. Discuss the anatomy of mediastinusis with diagram and classify and mediastival tumour

38. Enumerate and discuss causes of unilateral radio lucercy of chek

39. Discuss the differential diagnosis in a 50 years male prosecuting with haemophysis and cough. How would you investigate him using different imaging modalities?

40. Short notes on:
    i. Agencies of (R) lung
    ii. Preunomia alba
    iii. Pulmonary fibrosis
    iv. Bronchopulmonary segments of lung
    v. Pulmonary consolidation
    vi. Pulmonary collapse
    vii. Hyaline oesophogeal fistula
    viii. Microliteasis alreoloris
    ix. Similar syndrome
    x. Linear thevoce paraspiral line
    xi. Pulmonary hydatid disease
    xii. Sillonette sign
    xiii. Isotope scanning of lungs
    xiv. Lymphatic drainger of
    xv. Drug induced pulmonary disease
    xvi. Pulmonary embolism – evaluation by radiology and radio isotope

41. Role of radiology in pulmonary manifestation in ADIS.

42. Describe the clinical features in a case of pulmonary embolism. Discuss the role of radiological and imaging procedures in the confirmation of the condition.

43. Describe the anatomy of broncho pulmonary segments. Discuss the imaging features of pulmonary seguestration.

44. Discuss the role of imaging in the staping of lung cancer

45. Describe the radiological anatomy of phargue and mention the importance in diagnostic radiology

46. What are the x-ray appearances in the chest in pulmonary tuberculosis
    i. After hemortage (neurophysics)
    ii. Of atelectasis
    iii. Of caritations
    iv. Of bronchograms, stating indications of bronchography in lung tuberculosis

47. Give x-ray appearances of:
    i. Pleural effusion
    ii. Hydro pheumothose
    iii. Pulmonar tuberculosis
    iv. Lebar pheumosis

48. Short notes on:
    i. Respiratory distress syndrome in new born
    ii. Scmitar syndrome
    iii. Stophylogical pheusis
    iv. Meoloslima
    v. Tenrich pheumotoroo
    vi. Pheumoastitis caumi

CNS

1. Describe in brief and draw the diagram for CSP formation and its circulation.
2. Write short notes on:
    a. Craniopharyngioma
    b. Hydrocephalous
    c. Pituitary tumour and their diagnosis
3. Discuss the role of various imaging modalities in subarachroid hemmorhage
4. How a plain skiagram skull is helpful in diagnosing intra-crawial space occupying lesions?
5. Discuss the radiological evaluation of late ouset epilepsy in a 40 year old patient.
6. Discuss the differential diagnosis of intracracial calcification.
7. Write short notes on:
    a. Optic forawier
    b. Spina veutoser
    c. Syringomyetia
8. Write short notes on:
    a. Absent odentend process
    b. Empty sella syndrome
    c. Nasopharyngeal ongiofibroma
    d. CT in ventebral trauma
    e. Intracramial tuberculowa.
9. Describe radiological anatomy of eramiorentebral junction and list the radiological investigation for its evaluation.
10. Describe the principle of MRI and its role in neuro-radiology
11. Classify the spinal tumour and how do you investigate case of suspected intraspinal tumour.
12. Radiology of the intracramial head injuries
13. Briefly describe the following:
    a. Intracrawial (supratenterial) pathological calcification
    b. Spinal tuberculosis
    c. Multiple myelowa
    d. Neurocysticercosis

e. Acoustic neurinowa
f. CT findings of intra crawial hematoma

14. Describe and discuss the various imaging technique used in the diagnosis of the tumour of spinal canal and cord
15. Discuss in short:
    a. CT in third ventricular lesions
    b. Spina bifida acculta
    c. Odouoid hypoplassa
    d. Tuberculoma of the panetal lobe
    e. Estimation of solar volume
16. Sequential CT appearance in cerebral infarct.
17. Role of imaging in mass lesion involving optic neuro.
18. Role of CT & MRI in crauiophacygioma
19. Write a note on cramial ultrasound
20. Give brief account of CT appearances in tuberculeus memitigitis.
21. Indiacations of neuro sonography in infants.
22. Role of CT & MR in cerebellar lesions.
23. Role of various imaging modalities in prendo tumour of orbit.
24. Role of myelography in spinal tumour.
25. Describe the radiological investigation done in epilepsy.
26. Etiological classification and radiological diagnosis of ostealytic lesions in the skull.
27. Role of computed tomography in neuro cysticercosis
28. Radiological anatomy of subarachroid spaces of the skull and evaluation of a case of subarachroid haemortage.
29. Short notes on:
    a. Arnoid chiari malformation
    b. Neurosonography
    c. Skull bone fracture

30. Describe the radiological anatomy of the third ventricle and indicate the deformities and displacements of this cavity which may be caused by intracramial space occupying lesion.
31. Centical vein thrombosis and rate of MR angiography.
32. Discuss radiological features in spinal tumours.
33. Principle of MRI and its uses in disc hermiations.
34. Radiological parameters used in measurement of platybasia.
35. Briefly describe:
    a. Anatomy of intracramial vascular circulation
    b. Pars interanticulour
36. Discuss the radiological anatomy of sella turcica and enumerate the causes of physiological intra cramial calcification.
37. Describe the anatomy of the spiral canal and how do you investigate a case of lumbar canal stenosis.

38. Describe the anatomy of the third ventricle and describe the radiological appearances of raised intracramial tension.
39. Describe various plain x-rays views and in radiographic procedures to investigate a patient of acoustic neuroma. Enumerate other radiological investigations which you will advise after seeing plain x-rays.
40. Short notes on:
    a. Pineal gland
    b. CT in coin shape lesion of brain
    c. Neuroblastoma
    d. Pica
41. Enumerate the causes of ostesclerosis of the base of skull. Discuss the radiological differential diagnosis.
42. Write briefly about the MMR findings in spinal tumours.
43. Describe the normal anatomy of pituitary fossa. What are various causes of calcification in and around the pituitary fossa? Define empty sella syndrome.
44. Give the technique of cerebral angiography and describe the radiological features of the same in space occupying intracramial lesions.
45. How will you proceed to investigate a space occupying lesion of brain?
46. Write a note on myelography.
47. Describe the radiological features of intracramial memingloma.
48. Describe the technique of conventional myelography. Discuss the merits and demerits of water soluble myelographic contrast media.
49. Short notes on:
    a. Stenvers view
    b. Radiographic evaluation of skull fractures
    c. Spiral canal stenosis
    d. Endouplography
    e. Diastometamyetion
    f. Arnoldchian syndrome
    g. Memipiomas
    h. Agenesis of corpus callosum
    i. MR angiography
    j. Brain atrophy
    k. Granio ventebral anomalies
    l. Small and large optic feramer
    m. CSF rainorhoea
    n. Tuberous sclenosis
50. Describe the radiological anatomy of petrous temperal bone. Discuss the radiological and imaging techniques useful for examination of Hus bone.
51. Describe the anatomy of the internal auditory canal. How will you investigate radiologically a case of nerve tumour.
52. A female patient aged about 45 years couries with the history of epitepsy. Discuss the causes and your imaging protocol to arrive at the diagnosis.
53. What is the role of CT in the diagnosis of sellar and parasellar lesions.

54. Discuss the role of imaging in Head injury.
55. Describe the plain film and CT findings in Attanto-axial region pateology.
56. Describe the mechanism and radiological features of various types of cervical spine injuries. Discuss the various radiological and imaging techniques employed in such a case.
57. Describe the radiography and normal radiological anatomy of cronic ventebral junction.
58. Discuss the differential diagnosis of osteolytic areas in skull.
59. Describe the role of MRI in spinal injuries.
60. **Short notes on**:
    a. Post fossa tumours
    b. Carond cavernous fistula
    c. Astroloma
    d. Air meatography
    e. Ven reckling hawsens disease
    f. Chetesteama
    g. Arachroid
    h. Cherdoma
    i. MRI in degenerating disc lesion
    j. Enumerate the various factor affecting issue contrast a MR imaging and discuss any of them
    k.
61. A 35 yrs old patient mite history of hypertension (irregularly irected) is brought in unconscious state. Describe the radiological findings you will curve effective diagnosis.
62. How would you demonstrate cerebral venour sinus thrombers. Describe the cause.
63. Discuss and describe the method of examinations and radiological anatomy of the temperal bone
64. Discuss the differential diagnosis of "Multiple purchased out areas in skull radiograph"
65. Describe the radiographic technique of Ampaque radiography. Discuss its advantages over conventional mychil myelography.
66. Discuss the radiological features of cervical spondilosis and their clinical correlation.
67. Describe the indication, contradictions, techniques and compliance of radiography.
68. What are the clinical features of susanachroid hoemortage? Describe the rate of radiology in the diagnosis and moneyem.
69. How will you evaluate radiologically a 40 years old man presenting with low back ache.
70. Discuss indication, embatic material, delivery system and technique in intracramial embatizatia.
71. Short notes on:

a. Daray walker syndrome
b. Lumbar canal steeusis
c. Subdual hematoma
d. Sella turcica
e. Sturge weber syndrome
f. AV malformation of vein of Gaten.
g. Platzbasion
h. Intradural extramedullary spiral tumour
i. Sphenoidal ridge meuirgoma
j. Ventebral anteniography
k. Radiography of the sella turcica

72. What are the methods of investigating a tumour in the posiner cramial ? Discuss the radiological features and differential diagnosis of acouste neroma

GIT

1. Write short notes on:
    a. Necrotizing Enter colitis
    b. Role of radio isotopes in GI bleeding.
    c. Heo coecal tuberculosis
2. GE junction anatomy and hiatus hernia
3. Formation of bile and its passage.
4. Plain x-ray in the diagnosis of the acute abdomen write an essay.
5. How will you investigate a case of obstructive jaundice
6. Write short notes on:
    a. Malabsorption of small intative
    b. ERCP
    c. Hiatus hernia
    d. Meconium ileus

7. Discuss the role of ultrasound in hepatobiliary disease.
8. Discuss the radiological investigations of maleva.
9. How do you investigate a case of cystic swelling in left hypochandrium.
10. Describe the anatomy of Portal renous system Discuss the diagnosis and management of a case of upper GI bleed.
11. Write short notes on:
    a. Radiological anatomy of pharynx
    b. Hypotonic duodenography
    c. Aganglionosis of the colon
12. Describe the technique and utility of percutaneous banshepatic biliary catheterization and for puncture studies.

13. Discuss further evaluation of a patient showing non-opofication of gall bladder in oral chalecystography
14. Describe the radiological anatomy of esophagus. How simulation is helpful in treating a care of carcinoma of esophagus?
15. Discuss the role of various imaging modalities in the diagnosis of abdominal tuberculosis.
16. Define protocol for GI tuberculosis imaging
17. Ultrasonographic evaluation of peritoneal space.
18. Write briefly on the following:
    a. Amoebic liver abscess-imaging
    b. Differential diagnosis of fixed echopemic shadow ingall bladder or sonography
    c. Structures of the colon
19. How will you investigate a case of bleeding per rectum
20. Classify pancreatic tumors and discuss various imaging modalities.
21. Describe the technique and role of double contrast examination in the lesions of stomach and dluodenum. Describe the radiological finding of gastric ulcer.
22. Writ short notes on:
    a. Gas in the wall of colon
    b. Double contrast study of carcum and colon
    c. PTC
    d. Ulcerative colichis

23. What are the causes of pancreatic calcification? How would you investigate a case of carcinoma head of pancreas?
24. How will you investigate a middle oped patient presenting with right lumbar lump.
25. Discuss the role of modern imaging techniques in the diagnosis of a patient presenting with hepatic nose.
26. Describe the techniques of barium infusion examination of small intestines and its role in the diagnosis of cronic disease and various neoplasm of swall intestines.
27. Describe the technique and appearances of double contrast study of the upper GI trach. Compare and contrast it with conventional single contrast technique and endoscopy. Discuss the merits and demerits of the techniques.
28. Write short notes on:
    a. Double contrast study of esophagus and its technique.
    b. Diagnostic technique available for diagnosis of common bile duch structures
    c. Hernia harangh foramen of norgapic and boekdotak
    d. Angiography and hemodynamics of partial hypertension.

29. Describe the radionclide techniques and investigations used in diagnosis of GIT disorders
30. Write short notes on:
    a. Cholecystokimin cholecystography

   b. Ultrasound in GIT
   c. Interventional biliary radiology procedures.

31. Discuss the non-invasive methods of imaging in the gastro intestival tract of infants and neonate
32. Summarize the various technique of imaging of pancred and describe the radiological features of pancreatitis.
33. What are the causes of malabsorption syndrome and radiological features of iliocaecal tuberculosis.
34. How will you investigate a case of gastrointestinal bleed? Describe in brief the interventional procedure to control this bleeding.
35. Write short notes on Acute pancreatitis.
36. Write a note on 'liver-abscess as observed in ultrasonography
37. Write a comparative note on oral cholecystography and ultrasonography imaging of gall bladder.
38. Briefly describe the following:
    a. Acute abdomen in paediatric ope group
    b. Prematigrant conditions of GI track
    c. Neckless diraticullum
    d. CAT scan in ponecreatic noses.

39. Heocaecal valve appearances in normal and differential radiological features in abnormality.
40. Describe the radiological investigation in a elderly patient with the following complaints: Loss of weight, high coloured urine, pain in Rt hypoclodrium vomiting, loss of appetite.
41. Write in detail the procedure of spleno portgraphy. Discuss in detail the radiological findings in a case of portal hypertension.
42. How will you radiologically investigate a case of obstructive jaundice? Describe in details ultrasonography of biliary system.
43. Write short notes on:
    a. Hypotonic duodenography
    b. Anatechal anomalies
    c. Amoebaean
44. Describe the radiological investigation in obstructive jaundice. Describe in details the procedure of PTC.
45. Write an essay on various imaging methods in diseases of pancreas. Describe in detail radiological findings in pscendopancratic cysh.
46. Write an essay on Mental Hypertension. Describe various corrective surgical proceduresfor the condition.
47. What are the methods for diagnosis of a pancreatic tumour? Discuss in detail the radiological findings in barium study of pancreatic carcinoma.
48. Discuss the radiological features of duodenal ulcer. Discuss barium meal study versus endoscoopy in the diagnosis of duodenal ulcer.

49. How do you help in treating a case of carcinoma of esophagus.
50. How will you evaluate a case of partial hypertension radiologically.
51. Short notes on:
    a. Duodenal alvesia
    b. Upper GI endoscopy VS radiology
    c. Small bowel enema
    d. Congenital diaphragmatic hernias
    e. Irritable bowel syndrome
52. Hepatobiliary scan in acute chalecystitis and biliary deskinesia.
53. Slents used in biliary disorder – their advantage and disadvantage.
54. Discuss briefly the salient radiological features in
    a. Chronic ulternative colitis
    b. Hiatus hernia
    c. Psendo pancreatic cyst

55. Colour Doppler findings in liver disorders
56. How will you investigate a case of suspected Heckeli direnticulum
57. Gut lymphoma – radiological findings
58. Short notes on
    a. Ultrasonographic appearances of liver obscene
    b. Gastric outlet obstruction
    c. Cark screw esophagus
    d. Describe the patecology and sonographic features of Hepatic Malignancy
    e. Carpeniotal magacolon
    f. Biliary stenting
    g. Acholesia cardiac
    h. Gastric feudal diverticula's
59. Describe the roentgen technique and roentgen diagnosis in a case of acute abdomen in a young female
60. Discuss portal hypertension and enumerate the surgical procedures in management of this disease.
61. Describe the radiological anatomy of lower esophagus and differential diagnosis of various lesions in this region.
62. How esotope scientilography is helpful in studying the lesions of gall bladder?
63. Describe the radiological features of ulcorative colos.
64. Short notes on
    a. Imperferate anus
    b. Transpylasic plain
    c. Instant enema
    d. Radionuedeute liver scan
    e. Cirhosis liver
    f. Andenal livers

65. Discuss the role of radiology and imaging in the treatment of Congenital Hypertrophy Pyloric stenosis.
66. What are the types of diaperogmatic hernias? Describe the radiological technique and investigate the mhiatus hernia and describe theradiological features of the same.
67. Discuss the development of upper GI track. Describe the types of tracheo esophageal fistula.
68. Describe the anatomy of the esophagus and how do you investigate a case of capenital malformations of esophagus.
69. Describe the technique of Double Contrast Barium Enema. What are the radiological findings in ulternative colitis.
70. Collect saintigraphy is useful in detecting the lexious of the liver, how?
71. The role of sonography in GIT lesions.
72. Mention the types of diaphragmatic hernia and describe the radiological features of the same.
73. Discuss common anomalies at lower end of esophagus and radiological approach to investigate them.
74. Short notes on :
    a. Functional disturbance of esophagus
    b. Gas in biliary track
    c. Cholehithiasis
    d. Hydohel disease of liver
    e. Parcelain gall bladder
    f. Malignant gastric ulcer
    g. Carpental lesions of esophagus

75. Discuss the cause and radiological appearances of various cercal masse
76. Describe the Ultrasonographic findings of localized abnormalities of the lvier and discuss its diagnosis accuracy as compared to computed biography.
77. Discuss the role of radiology in blunt injury of abdomen.
78. What are the causes of Malascorption syndrome and describe the radiological features of the same.
79. What are the carpenital anomalies of esophagus? Discuss in detail atrenia of aesophapus.
80. Short notes on:
    a. Radiological investigation for gall shave.
    b. Isotope liver scan
    c. Psendopancretic cyst
    d. Cliba needle in percutaneous transheopatic cholongiography
    e. String sign of carter
    f. Diaphragmatic hernia
    g. Sigmoid valvulus
    h. Scent film in valvolus of descending colon
    i. Post operative T-tube cholongiogram

j. Oesophageal varces
k. Biliary stridge
l. Biochemical changes in jaundice
m. Imaging in anorechal malformation
n. Gardnesis syndrome
o. Crohis disease
p. Hirsch pump disease

81. A middle oped woman comes to zen with dysphopus. Discuss the differential diagnosis and radiological investigations in the …
82. Discuss in detail the double contrast study of stomach and duodenum
83. Write a note on findings on plain skiogram abdomen.
84. How will you investigate radiologically a case of dysphogia. Describe in detail the differential sinus in bemigh and malignant structures of lower end of esophagus

MISCULOSKETCHAL

1. Discuss the role of plain x-ray of hhands in diagnosis of common systemic diseases.
2. Pahophysiology of renal rickets
3. MR anatomy of shoulder joint
4. Write short notes on:
    a. Perthes hip
    b. Congenital syphilis
    c. Eosinophil granuloma
5. Discuss radiology of arthritis. The radiological findings in rhenmatoid arthritis, oesteoanthritis and septic antaritis.
6. Discuss the differential diagnosis and describe the radiological features of callapse of a single rertebra.
7. Write short notes on:
    a. Manfans syndrome
    b. Osteoclashama
    c. Pseudofracture
8. Write short notes on:
    a. Neurofibromatisis
    b. Osteoid osteoma
    c. Congenital dislocation of hip
9. Describe the differential diagnosis of generalized osteosclerosis
10. Write short notes on:
    a. Perioshhs
    b. Osteochandritis dissecans
    c. Osgood shatten disease
    d. Osteoporsis

11. Name various types of Nuecopoly saccharidosis disorders. Describe radiological feature any one in detail
12. What us poresis in bones? Mention the condition causing porosis. Describe in detail the radiological feature of scurvy
13. Write short notes on:
    a. Collapse of D-6 rentebra
    b. Lytic bone lesion mandible
    c. Spondylolisthesis
    d. Calcification of interventesral disc
    e. Metaphyseal thanslucent line
    f. Widening of interventebral disc space
    g. Salitary lytic lesion in the diaphysis
    h. Absorption of terminal phalarpes in the hands
    i. Sclerosed rentebral bodies
    j. Rib notching
    k. Burkitts lymphoma
14. Classify skeletal dysplasia and enumerate their radiological features
15. Describe the anatomy of 'shoulder joint' and the radiographic new.
16. Describe the radiological anatomy of wrist joint and the radiography of scaphoid
17. Enumerate the various cases of Salitary sclerosis bone lesion
18. Short notes on:
    a. Osteogenesis imperfecta
    b. CT in bone disease
    c. Describe the pathology of veatebral tuberculosis and its roentgen appearances
    d. Melorheostosis
19. Name various types of Osteochanditis disorders. Describe radiological features of Perthes disease.
20. Describe the development of bones and enumerate the benign tumour of the same.
21. Write short notes on:
    a. Spina ventosa
    b. Milkman fracture
    c. Adamantinoma
    d. Rickets
    e. Moutagia fracture dislocation
    f. Radionudeide bone scan
22. Give an account of various types of penosteal reactions. Discuss the causes and significance of periosteal reactions.
23. Describe the anatomy of hip joint and how the muscle group sign is helpful in knowing the disease of the hip.
24. Short notes on:
    a. Radionecrosis of bone
    b. Aheumatoid arteritis of knee
    c. MRI in joint lesions

   d. Single ivory rentebra
   e. Caisson disease
   f. Pagets disease
   g. Thanatropic diwarfism

25. Describe the imaging features of Osteosarcoma
26. Differential diagnosis and radiological features of tuberculosis of spine.
27. Describe the radiological features of he following:
   a. Tuberculosis of spine
   b. Osteolytic secondaries of spine
   c. Osteochanditis of spine
   d. Spondylolistesis
28. Discuss in detail sequence of radiological changes in a case of Ankylosing sondylisis
29. Discuss radiographic skeletal changes due to Vit. D deperency before and after epiphyseal fusion in bones.
30. Enumerate the causes and discuss the radiological features of Osteclylins
31. What are the different stages of Parthex disease? Discuss aseptic necrosis of bone
32. Discuss the causes and radiological appearances in salitary device ventebra
33. Describe the radiological features in the deficiency of calciferal and Ascorble acid.
34. Describe the biochemical changes and radiological features in:
   a. Renal nickets
   b. Scurvy
   c. Vit D Deficiency rickets.
35. Describe the etiology, pathology, pathegenosis and radiological features of pseudocazalgia
36. Describe the radiological features of tuberculosis of hip joint an ddifferential diagnosis of the same.
37. Write short note on:
   a. Osteogenosis imperfecta
   b. Multiple myeloma
   c. Osteomelacia
   d. Isotope scanning for skeletal metastosis
   e. Radiological and isotope investigations for amoebic abscess of liver.
   f. Block ventebra
   g. Avulsion fracture
   h. Tubercus sclerosis
   i. Marfanis syndrome
   j. Brodies abscess
   k. Bobcock triangle
   l. Knee antarography
   m. Synorial choudiamalosis
   n. Secoxegative anteropathies
   o. Holt Oram syndrome

p. Man ossifying fibroma
q. Radiography of hands in rheumatoid anomitis
r. Radiography for fracture of neck femur
s. Pseudoachendroplasia
t. Avascular recrosis of head of femur
u. Bone infasc
v. CDH
w. Radiography of recurrent dislocation of shoulder
x. Tunnel new of wrist joint
y. Radiography of steno-clasicular joint

38. Please describe in detail the radiological appearances in scurvy. What are the differential features of scurvy and rickess
39. Describe the biochemical changes and radiological features of:
    a. Fluroses
    b. Head poisoning
    c. Hypophosphate
    d. List out the malignant bone tumours. Describe the radiological features of osteosarcoma

40. Discuss in brief the radiological findings of conditions causing lower jaw swelling
41. Enumerate the causes of penosteal new bone formula. Describe imaging features of acute osteomyelitis
42. Describe the pathogenesis and the radiological appearance of bone forming tumours.
43. Describe the pateological basis of radiological changes seen in the following conditions:
    a. Rickets
    b. Osteomalacia
    c. Hyperparathyradium

44. Enumerate all the possible body injuries which may be sustained due to a fall on an oustreched hand. Describe the radiological features of such injuries around the wrist joint
45. Discss the role of skeletal imaging in the evaluation of bone pathologies
46. Write a short essay on Osterporosis
47. Discuss the nutricnal disease affecting bone
48. Describe the pathology of Osteomyelitis as seen an conventional films. Do you think CT, Nuclear scan or MRI can improve on the diagnosis and if so how
49. Discuss the role of MRI in the detection of disease of Musculoskeletal system.
50. Discuss radiologic evaluation of facial and arbital trauma
51. Short notes on:
    a. Radiography for # of neck of femur and radiology of S P nailing
    b. Painful shoulder

c. Pzles disease
d. Prune Belly syndrome
e. Osteofibran dysplasia of tibia and fibula
f. Neuropatric joint
g. Proximal focal fenoral deficiency
h. Parositic safe tissue calcification
i. Pellirprini steida lenion
j. Pulmonary osteoartaropalay
k. Brown tumour of bone
l. Aneurysmal bone cyst
m. Bone densitometry]
n. Ultrasound of should joint
o. Radiography of fracture acetabulium
p. Achandroplasics
q. Ganchers disease
r. Radiography of sarechor joint
s. Carsdegious bone tumour
t. Intert _____
u. Sprengoli shoulder
v. Heel pad sign
w. Progen shoulder
x. Skeletal anomalies in Merpelision
y. Scurvy
z. Non
aa. Kippel syndrome
bb. Anticular tuberculosis
cc. Turness syndrome
dd. Ankylosing spondylitis
ee. Osgood schatter disease

52. Discuss the skeletal injuries around the ankle joint
53. A 40 years old man peevish with complaint of low back pain. How will you evaluate him?
54. Enumerate the causes of scoliosis. Discuss the role of radiologist in its diagnosis and management
55. Describe the ____ acid metabolism. What are crystal antoropathises. Describe their radiological appearance.
56. How the plain radiography of hands helps in the diagnosis of various disorders of skeletal and other systems. Discuss the radiographic findings in brief.
57. Describe radiological features in:
    a. Chandresarcomes steris
    b. Aneurysinal bone cyst upper and humorous

58. Discuss the differential diagnosis of a painful ® hip with osteoporosis and loss of joint space in a chief oped 10 years. How will you investigate radiologically and reach a reasonable disputes?
59. The plain radiograph of the spine shows osterpersia. Enumerate the causes and differential diagnosis
60. Enumerate the causes of stippled on fragmented epiphysis. Discuss the differential diagnosis.
61. Discuss the malignant bone tumuor with reference to their pathology and radiological appearances.
62. Discuss the various fractures that occur in and around the wrist joint and the different pitfalls in their diagnosis.
63. Discuss the pathogenesis and radiographic appearances of acute and cronic osteomyelitis.
64. Describe the radiological changes in bones and joints in hematological disorders.
65. What do you understand by neuropatenic joints? Give their x-ray appearances.
66. Describe in detail the x-ray appearances of
    a. Perthis disease of the hip joint
    b. Early tuberculosis of hip joint
    c. E tumour of the tibia

67. Describe the technique you adopt for the radiograph of the hip joint. Give the radiological appearance seen in a case of osteochanditis journalis deferm correlate this with the pathological process and clinical history.
68. Short notes on:
    a. Muscle skeletal Ultrasonography
    b. Neutophroma
    c. Axial view of the shoulder
    d. Arovalar nercist
    e. ____
    f. Psechydermopeniostitis
    g. Radiology of the knee joint
    h. SolewdermaDiscuss in detail the clinical features, role of imaging in the diagnosis and management of cagenital dislocation of the hip.
    i. Describe radiographic technique for
        (a) Recenient dislocation of shoulder
        (b) Right socroili joint
        (c) Small premopenteneum
        (d) Scuputer

69. A young man presents with scolosis of the lumber spine. Discuss the radiological investigations you will carry out to arrive at a diagnosis.
70. Middle age man comes to you with pathological fracture of the lower end of left femur. How will you proceed to investigate. Describe radiological procedure.


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CVS

1. Write notes on:
   i. PDA
   ii. ASD
2. Describe the development of heart. List out the Rt and Lt intracardiac shunts. Briefly mention the plain x-ray findings of fallots tetralogy.
3. Write short notes on:
   i. Angioplasty
   ii. Mitral sterosis
   iii. Coarction of aanta
   iv. Aortic dissection
4. What is the role of radiology in the diagnosis of renovascular hypertension?
5. Briefly describe the following:
   i. Pulsed Doppler echocardiography in neutral stenosis
   ii. Pharmaco angiography
   iii. Contribution of radiologyin management of systematic hypertension
   iv. Eisenmerger reaction
6. Classify the types of aneurysms seen and discuss briefly the various radiological methods of diagnosis available with their relative merits.
7. Classify the causes of pulmonary plekora and its distinctive features.
8. Write short notes on:
   i. The role of99 Ton pyrophosphate scientigraphy in acute microcardial infarct.
   ii. Complications of arteriography
   iii. Ebsteins anomaly
9. Enumerate the left to right shunt lesions. Describe the radiological features in total anomalous pulmonary renous drainage.
10. Write short notes on:
    i. Plain skiagram findings in nutral stenosis
    ii. Hilar dance
    iii. Scimitar syndrome
11. Discuss the methodology and indication of selective cardiac angiography.
12. Enumerate the left to right shunt cardio vascular lesions. Describe the role of radiology in and features of persistent ductus anteriosis
13. Role of imaging in aarto anteritis
14. Role of plain radiography in pulmonary plethora
15. Imaging of nutral valve disease
16. Discuss in detail the capenital cyaratic heart disease with plethoric lungs.
17. Interventional vascular procedures.
18. Plain x-ray findings in L to R shunts
19. Write short notes on:
    i. Pseudo coarctation of aarta.

ii. Interventional techniques in occlusive vascular lesions

20. mention the various methods used for cardio vascular imaging.
21. Give in detail the pathology and radiological diagnosis of Aartoartenitis (Takayasus disease)
22. Briefly describe the following:
    i. VSD
    ii. Doppler renal hypertension
    iii. Seldingeri technique
23. How will you investigate a case of pulmonary thromboembalism
24. How will you approach a case of acute chest pain.
25. Describe the radiological features and differential diagnosis of coarctation of aorta
26. Give the classification of pulmonary hypertension and describe the clinical manigestation.
27. How radiology is helpful in treating a case of hypertension?
28. Discuss the differential diagnosis of cardiomegaly
29. Write short notes on:
    i. Fallots tetrology
    ii. Transposition of great vessels
    iii. Atheromatous aorta.
30. Role of imaging in angiofibrana
31. Renal vein thrombosis – etiology and radiological features.
32. Write in detail the procedure of inferior rena carography. Discuss its role in diagnosis of renal vein thrombosis.
33. Discuss in detail radiological investigations in Burgons disease.
34. How would you proceed to investigate radiologically a young hypertensive? Describe in detail isotope renography
35. Discuss the plain x-ray findings in cardiac cordiction. Describe in detail radiological findings in nutral Stenosis.
36. Discuss the causes, methods of investigation and radiological appearances in pencaditis
37. Short notes on:
    i. Hemangioma
    ii. Doppler study in deep vein thrombosis
    iii. Describe the pathological anatomy of Tetralogy of Fallot and its radiological appearances.
    iv. Corpus convernosography

38. Role of radio nuclide imaging in ischemic heart disease.
39. Short notes on:
    i. Doppler in varicose veins
    ii. Aartic window
    iii. Lung changes in nutral stenosis
    iv. Coarctation of aarta
40. Describe the radiological features of tetrology of Fallot

41. Describe the radiological anatomy of heart and mention the chambers farming borders of heart in ventral, lateral, RAO and CAO views of chest.
42. Describe the development of heart and describe the radiological features of cyanotic carpenital heart disease.
43. Describe the blood supply of the heart and law is the coromacy angiogram useful in the treatment of myocardial ischaimia
44. Discuss the causes of superior Vena Cora Syndrome and the radiological appearances of the affected organs.
45. Enumerate cargenital anamalies of heart. Discuss ore of the commonness cyanotic heart disease x-ray findings.
46. Write in brief physiology of pulmonary circulation and radiological features of pulmonary hypertension.
47. Discuss the radiological features of enlargement of individual cardiac chamber as a plain x-ray chest.
48. Write in brief physiology of foetal circulation and radiological features of patent ductus anterisus.
49. Describe the radiological investigations to be done in a case of malignant hypertension.
50. Which are the causes of nutral stenosis and describe the radiological features of the same.
51. Describe in detail Percutauneous Retrograde Aortography. Describe radiological features of unilateral renal artercy stenosis.
52. Describe the radiological appearance as plain x-ray chest and an fluoroscopy:
    i. Left to Right cardiac shrub
    ii. Mitral stenosis
    iii. Pericardial effusion
53. Discuss the differential diagnosis of rib notaching
54. Describe the normal anatomy of pericardium. Discuss the role of imaging in pericardial disorders.
55. Describe briefly pathogenosis of Pulmonary oedema
56. Write short notes on:
    i. Anamolous pulmonary venous connection.
    ii. Takayasud arteritis
    iii. Cardiomyopahy
    iv. Scientigraphy of myocardial perfusion
    v. Anteriovenous fistula
    vi. Superior venacarography
    vii. TAPVD
    viii. Ct Angiography
    ix. Intrarscular ultrasound
    x. Aissecting aneurysm
    xi. Non invasive cardiac imaging
    xii. Myxema of left almum
    xiii. Pepliteal antery entrapment syndrome

xiv. Pericardial calcification
xv. Subclarian steal syndrome
xvi. Indices in spectral Doppler
xvii. Blood pool imaging
xviii. Plain film findings in carpenital heart lesions
xix. Angiodysplasin
xx. Inter pulmonary audema
xxi. Car pulmonale
xxii. Renal antery stenosis
xxiii. Hemangioma

57. Describe briefly four vessel angiography. Draw diagrams and label all broucher.
58. Discuss the differential diagnosis of enlarged pulmonary canus seen an chest radiograph? How will you investigate such a case?
59. Describe the interventional techniques in vascular radiology.
60. Give a brief account of embryological development of interatrial septal defect. Describe the radiological appearance.
61. Describe indications, contraindications and technique of splenoportography
62. Discuss vascular imaging procedures other than conventional angiography
63. What are the recent advances in radiological and imaging techniques and interventional modalities in diagnosis and treatment of coronaly anterial distance.
64. Discuss the principle involved in balloon angioplasty. Describe the procedure of renal angioplasty.
65. Discuss the role of imaging in thoracic aeotic aneutysm and its complications.
66. Discuss the present status of angioplasty.
67. Discuss the role of Doppler in peripheral renous abnormalities?
68. A patient reports with garprene of one of his toes. Describe in detail the various radiological investigations used to diagnose the case.
69. A young lady of 25 presents with acute chest pain. Describe the clinical and radiological findings in such a patient.
70. Discuss the radiological diagnosis in pericardial diseases.
71. Describe angioplasty procedures in peripheral resets and discuss their complications.
72. Discuss the role of non invasive radiological and imaging technique in the diagnosis and management of diseases of cardio vascular system.
73. Write an essay on Intravascular contrast media.
74. Discuss the role of various imaging modalities in chest trauma.
75. How will you investigate radiologically a case of Rheumatic heart disease? Descirbe your dindigns in mitral stenosis.
76. Describe in full the radiological findings in a case of nutral incompetence.
77. Give the radiological anatomy of left atrium. Briefly mention the various conditions associated with its enlargement.
78. Discuss the complication of Angiography.
79. Describe your technique of Avet Angiography. Discus various radiological findings in aneurysm and coarctation of anta.

80. A case of suspected deep ven thrombosis of the lower limb. Describe in detail the radiological technique used to arrive at the diagnosis.
81. Enumerate and describe in brief the techniques of abdominal radiography.
82. Describe the techniques used in the radiological assessment of cardiac chamber.
83. Describe the indications, contraindications, technique and complication of carotid angiography.
84. A boys 10 yrs of age with history of hypertension (170/95 num of hg) is refered to you for radiological investigation. Describe the various procedures (including technical details) you will follow to arrive at the cause of hypertension.

GK

1. Pathophysiology of hypernophroma
2. Write short notes on:
    a. Unilateral contracted kidney
    b. Ultrasonography in the himester bleeding
    c. Ultrasonography in scrotal swelling

3. Classify cystic lesions of kidney. How will you radiologically investigate?
4. Describe the radiological findings in the tubeculosis of renal tract.
5. Write short notes on:
    a. High dose urography / drip infusion urography
    b. Abdominal preparation for radiography
    c. Sonographic findings in benign space occupying lesions of kidney.
    d. Vesical diverticula's

6. Write short notes on:
    a. Sonographic evaluation of oranion mass
    b. Thorapeube implications for fetal abnormality detection
    c. Endometriosis
    d. Renal cyst

7. Classify the renal masses and discuss role of radiology and imaging in hypernephroma
8. What are causes of lower urinary tract obstruction? Describe the technique of examination and findings.
9. Write short notes on:
    a. Intrauterine pregnancy
    b. Isotope renogram
    c. Vaginal ultrasound

10. Discuss the causes of nephrocalanosis. How will you proceed to investigate such a case?

11. Discuss the value of radiological methods in the assessment of functional status of the urinary tract.
12. Imaging of posterior urelaval valves.
13. Role of Ultrasonography in evaluation of prostatic disease.
14. What are the causes of hematuria? How will you investigate a patient of hematuria with imaging?
15. Write short notes on:
    a. Intrauterine foetal death
    b. Page kidney
    c. Renal trauma

16. A 30 yrs old female has presented with acute pain in lower abdomen. What are the kidney causes? Discuss your role in work up of this case.
17. Imaging modalities in renal transplant rejection.
18. Enumerate the indications for percutaneous needle nephrostomy and its applications. Describe method of one stage percutaneous nephrohithotomy.
19. Discuss the different radiological and imaging techniques for localization of placenta
20. Write short notes on:
    a. Radiological appearance of renal tumour
    b. Nephrographic effect
    c. Gynaecography
    d. Radiological assessment of foetal death.
    e. Angiographic findings in a case of renal hawartoma
21. Discuss the investigations and radiological appearances in a case of hypertension.
22. How would you investigate radiologically a patient aged 50 yrs with history of hematoma. Discuss the causes differential diagnosis and radiological features of various conditions.
23. Write short notes on:
    a. Principle and application of ultrasound in obstetives
    b. Placentral localization
    c. Renal contical index
    d. Prostatic calcification
    e. Neurogenic bladder
    f. Urinal structures
24. Write a note on transropinal sonography
25. Parameters used in biophysical profile.
26. Imaging profile in endometriosis
27. Role of colour Doppler in obstences and gynecological practice.
28. How do you investigate a patient with suspected extra uterine pregnancy?
29. Write briefly on:
    a. Ultrasonography in prostatic conditions
    b. Ultrasonography findings in a case ofintrauterine foetal death
    c. Posterior urethrao valve

30. Write a detailed note on micturating cysto urethrography
31. Calcification in petric carity in the male.
32. Discuss the radiological and imaging techniques in a 40 yrs old person presenting with hematubia.
33. What is the role of medical imaging in tubal pregnancy?
34. Advantages and disadvantages of contrast media used in the urinary system.
35. Role of imaging in xanthrograunlomatous pyelonephritis and its differential diagnosis.
36. Intraventional techniques in urinary tract disease.
37. Sonography in gyneocologic infectivity emphasizing transrapinal scanning.
38. Short notes on:
    a. Ultrasonographic appearance of placentral maturational changes.
    b. Ultrasonographic appearance of decidual changes in early intrauterine pregnancy.
    c. Pateology of chronic pyelonephritis.

39. Write short notes on:
    a. Polycystic disease of kidney.
    b. Utero renous intra vasations
40. Write an essay on Renal Failure with special reference to radiological and imaging procedure.
41. Short notes on:
    a. Double dose IVU
    b. TVS in early pregnancy
    c. Hictuating cystouretawgraphy
    d. Ureteric reflex
    e. Seminal vesiculography
42. Describe the radiological signs of post maturity and foetal death.
43. Discuss the development of human urogenital system and describe the anomalies associated with the same.
44. Discuss the morbid anatomy of placenta prena. What are the methods of radiological determination of placentral site?
45. Write short notes on:d
    a. Nephrographic effect
46. Discuss the development of urogenital system and describe the radiological appearance in crossed renal ectopier
47. Describe radiological approach approach to a case of infetibility.
48. Discuss the various imaging techniques in the evaluation of renal masses.
49. Describe briefly the procedure and clinical applications of Renogram.
50. Describe the radiological features of the following:
    a. Renal tubeculosis
    b. Plycystic disease of kidneys
    c.

51. A 30 yrs old male having a pairless testicular swelling of progressive nature of one year duration on left side. Discuss the differential diagnosis and different radiological investigations required to the performed.
52. Describe the scientiscanning. Findings in renovascular disease.
53. Discuss the Ultrasonographic findings of various renal valves and in diagnostic valve as compared to execution urography.
54. Enumerate the cystic disease of the kidney and describe their radiological appearances.
55. Short notes on:
    a. Ultrasonography in first trimester of pregnancy
    b. Doppler evaluation of the kidney.
    c. Ten day Rula
    d. Ureterocode
    e. Ultrasound of prostate
    f. Pothology of renal tumours
    g. Antegrade pyelography
    h. Xauthogranulomatous pyelonephritis

56. Describe the technique of Gynaecography. What is the valve in the diagnosis of the disease of female genital tract
57. What are the causes of haematuna in male aged asane 60 years and describe the radiological features of plain x-ray and IUP in carcinoma of kidney.
58. Describe in detail the indications and procedure of thysterosalpingegraphy. Discuss in detail the radiological appearance of hydrosalpine
59. How will you proceed to perform hysterosalpingography in a woman of 30 years? Describe the findings in a case of secondary sterility.
60. How will you proceed to conduct execution pyelography? Describe the IUP findings in carcinoma cervix.
61. Discuss the usefulness of Biophysical profile in obstetric management.
62. Write a note on investigations carried out in Renal disorders.
63. Write the radiological investigations in a case of abortion and its interpretations.
64. Describe the zenal anatomy of the prostate gland. Discuss the technique of transcretal ultrasound in the diagnosis and stoping of prostate carcinoma.
65. Discuss the radiological evaluation and management in a 50 years old patient presenting with haematoma
66. Discuss the role of ultrasound in maging of cystic lesions of the foetal abdomen.
67. Discuss the role of imaging in genitourinacy tuberculosis.
68. Discuss the role of Ultrasonography in male and female infertility.
69. Discuss the role of imaging in case of Renal transplant.
70. Briefly describe conventional and modified IVU. Discuss the role of imaging in renal cell carcinoma.
71. Discuss the role of ultrasound in assessment of foetal well being.
72. Discuss the imaging investigation and appearances in a case of Aneuresis.
73. Discuss the imaging modalities in the evaluation of obstructive uropathy.

74. Discuss the role of colour Doppler in various pregnancy problem.
75. Enumerate the vascular complications in Renal transplant surgery.
76. Describe the imaging approach in diagnosing them.
77. Describe normal anatomy of supra renal glands. How will you investigate a case of supra renal tumour?
78. Discuss the role of Ultrasonography in diagnosis of foetal well being in 2nd & 3rd trimester of pregnancy.
79. Write short notes on:
    a. Intrauterine Foetal transfusion
    b. Renal rickets.
    c. Renal cystic disease.
    d. Foetal age assessment
    e. Lithotripsy
    f. Fallopian tube recanolization
    g. Adrenal calcification
    h. Nephrocalcinesis
    i. Transvaginal ultrasound
    j. PUJ obstruction
    k. Retrocanal uretes
    l. Nephrotiteotripsy
    m. TVS in infertility
    n. Colour Doppler 146 R
    o. Sonourethrography
    p. Gemito urinary tuberculosis
    q. Hysterosalpungography
    r. Ultrasound evaluation of Hydrept features
    s. Meaullasy spine kidney
    t. Vascular mole
    u. Value of post ---------- radiograph in intravenous urography
    v. Renal assecess
    w. Sonohystrography
    x. Sonography in infertility
    y. Pelimety
    z. Radiosctope assessment in renal failure
    aa. Placentgraphy
80. Describe how foetal maturity can be determined by X-Ray and USG. Compare the two techniques.
81. What are the various modalities available to evaluate a male infertile patient? Discuss the role of ultrasound with Doppler facility in evaluation of varicoceles.
82. Discuss the bio chemical and radiological features in Renal rickets . Classify cyst of kidney. Describe the appearance in vaneu radiological investigations to dispose a polycystic kidney.
83. Discuss the role of imaging techniques in obstelvies

84. Discuss various anomalies of kidney in relation to development of kidney. How will you investigate them radiologically?
85. Discuss radiological pelimetry
86. Enumerate the causes of incontinence in a 64 yrs old male child. How will you proceed to investigate their child so as to arrive at a radiological diagnosis?
87. Describe trouvaginal sonography and compare it with trans abdominal sonography in the evaluation of the female pelvis.
88. Describe in detail the technique of Routine Intravenous Pyelography. What changes we see in it.
    a. Hydronephrosis
    b. Polycystic kidney
    c. Tumour

89. Discuss the causes of unilateral renal enlargement. How would you investigate such a case radiologically.
90. Discuss how you would manage further a case of nonnonalized kidney on IVP
91. How will you investigate radiologically a case of cefhate pelvis disproportion in a pregnant woman?
92. Describe the technique, indications and cintro indications for Hysterosalplingography.
93. Describe the hazards of intravenous urology and discuss their possible prevention, early detection and management.

MISCELLANEOUS

1. Write a short essay on Interventional Radiology.
2. Write short notes on:
    a. AIDS
    b. Value of Ultrasonography
    c. Radiopaque catheters
    d. Malignant lasyngeal tumour

3. Enumerate the various emergencies, which may be expected to occur in the first twenty four hours of life and require radiological findings in each.
4. Describe in brief the radiological findings in disease primarily involving the veticuloendothelial system.
5. Describe the role of computerized tomography on a staging procedure in:
    a. Head and Neck malignancies
    b. Malignant renal neoplasms
    c. Carcinoma of the aesoplogus
    d. Osteophytes and traction spurs

6. Discuss the role of MRI in the following:

a. Memingioma
b. Acoustic neuroma
c. Malignant tumours
d. Carpenital syphilis

7. Compare the role of computed tomography and magnetic resonance imaging in the orbital diagnosis.
8. Discuss the role of Mammography in the diagnosis of the benign and malignant lesions of the breast
9. Write short notes on:
   a. Interventional procedures in imaging
   b. Foreign body localization in the orbit
   c. Radiological study of internal auditory canals
   d. Imaging of breast.
10. Discuss in short various interventional technique used in radiology.
11. Describe the following briefly:
   a. Hyopic and hypermetropic orbit
   b. Dudderal diverticula
   c. Wegeneri gramulava
   d. Orbital sonography
   e. Lymphongiography
12. Role of CT in maxillary tumour
13. Write a note on mammography and write in short about zero-mammography.
14. Mention in detail as how will you establish dept of radio diagnosis in a medical college.
15. Unilateral proptosis – Role of computed tomography and magnetic iesonance imaging.
16. Write short notes on:
   a. Pedal lymphongiography
   b. Genetic burden
   c. CT guided percuteneous procedures

17. Role of nuclear scan in hepatic and pulmonary disease.
18. Describe mammography technique and radiological features with comparison between radiation mammography and sono mammography.
19. Discuss the following:
   a. Normal CT at T 12 level.
   b. CT guided biopsy
   c. Retroperiteneal fibrosis

20. Mammography – screen versus non-screen feature
21. Describe the radiographic techniques for nasalization of :
   a. Superior orbital tissue
   b. Mastoid air cells
   c. Scaphoid

22. Role of imaging in breast tumours.
23. Radiological findings in AIDS
24. Discuss in short:
    Radiographic technique
    a. Infant weighing upto 10 kg – Chest AP
    b. Abdomen lateral decubitus
    c. Odontoid process AP
    d. Skull-Townis projection
    e. Rads & cones vision
25. Discuss in short:
    a. Moprification radiography
    b. Mass miniature radiography
    c. Tele radiography
    d. Neurosonography
    e. Mammography in carcinoma breast.
26. d

ABDOMEN

1. Differential diagnosis of mass in right iliac fossa. [JUL 98]

2. Describe the role of CT in acute abdomen. [JUL 99, 02]

3. Role of USG in acute abdomen. [02]

4. Superior mesenteric artery syndrome.

5. Sonographic findings in abdominal tuberculosis.

6. Retroperitoneal fibrosis.

7. Describe imaging in a 5 years old child presenting with lump in Right lumbar region. [JAN 01]

8. Imaging in blunt abdominal trauma. [02]

9. Prune belly syndrome. [DEC 02]

10. MDCT application in abdomen. [02]

11. CT in Acute abdomen. [DEC 03]

12. Abdominal trauma . [JUN 04]

13. Imaging of Retroperitonium . [DEC 05]

14. MRI-imaging of Retroperitoneum. [JUN 06]

15. Imaging in retroperitoneal fibrosis. [JUN 07]

16. Role of plain radiography in acute abdomen.

17. Imaging in 9 year old girl presenting with right lower quadrant pain. [09]

18. Draw of neat line diagram of perinephric spaces including its relationship with other spaces. Write CT features of perinephric abscess and urinoma. [June 2008]

19. Enumerate various causes of Para vertebral masses and their imaging features. [Jul 10]

20. Enumerate causes of pain in right iliac fossa i 20 yr old married female. Discuss the role of USG and CT scan in evaluation in this case [June 2011]

21. Enumerate the causes of mechanical small bowl obstruction in an adult. Describe the differentiating features of small and large bowel obstruction on plain radiography. Briefly discuss the role of CT in mechanical small bowel obstruction. [Dec 2012](3+2+5)

22. Briefly describe the etiopathology and imaging findings of ileocecal tuberculosis. Discuss the features that are useful to differentiate it from Crohn's disease. [Dec 2012](3+2+5)

23. Enumerate various causes of acute pancreatitis. Briefly discuss various terms used in description of imaging findings of acute pancreatitis and indicating it's severity. [Dec 12](2+6+2)

24. Briefly discuss the development of midgut. Describe the imaging findings of midgut malformation and midgut volvulus on various imaging modalities. [3+3+4 Dec 12]

25. A 40 year old male presents with a lump in the RIF. What would be your approach as a radiologist to help come to a diagnosis? Discuss the characteristic radiological features of any 3 pathologies, presenting with right iliac fossa lump. [1+9 Jun 13]

26. Discuss the DD in a 38 year old male presenting with RIF lump, lassitude & altered bowel habits. Depict the conventional imaging findings in intestinal TB. [4+6 Dec 13]

27. Briefly describe the role of imaging in the following: a) Neuroendocrine tumors of pancreas b) Small bowel lymphoma. [5+5 Dec 13]

28. Enumerate the causes of a palpable lumbar mass in a 5-yr-old child. Discuss the algorithmic approach you would use to arrive at diagnosis in this case. [2+8 June 14]

29. Enumerate the causes of pneumoperitoneum with peritonitis in a 30 yr old male patient. Describe the findings which can be seen in supine abdominal radiograph in a case of pneumoperitoneum. Discuss the CT findings which may be seen in bowel ischemia due to acute superior venous thrombosis. [2+2+6 June 14]

30. A 10 yr old female child presents to the emergency department with acute onset RIF pain. Enumerate possible causes. Discuss the radiological work up highlighting imaging findings in 2 common conditions. [2+8 June 14]

31.A 27 yr old married woman presents to emergency room with sudden onset of severe pelvic pain. Enumerate possible causes. Discuss the role of imaging in this case. Describe the findings in 2 common conditions which may cause above symptoms. [2+2+4 June 14]

32. Abdominal radiograph shows pneumointestinalis in a 55 yr old male patient. Enumerate various causes. Describe the role of MDCT and imaging features in 2 such conditions. [2+8 Dec 14]

33.Imaging evaluation in a 13 year old girl presented with acute right lower quadrant pain. [10 Dec 15]

ADRENALS

1. CT features in adrenal tumours. [JAN 97]

2. Pheochromocytoma. [JUL 97, JUN 04]

3. Total evaluation techniques for adrenal disease . [JUN 06]

4. Classify adrenal tumors and role of CT and MRI in evaluating them. [DEC 07/09]

5. CT and MRI anatomy of Adrenal glands and normal variants. [09]

6. a) What are the various causes of b/l adrenal masses? b) Characteristic features in different imaging modalities in two such causes. [2+2+4 June 15]

ANATOMY

1. Anatomy of urethra. [Jan 97]

2. Segmental anatomy of liver and its importance. [JUL 97]

3. Cross-Sectional labeled diagram of Peritoneal Spaces at level of renal hila. [JUL 98]

4. Cross Sectional Anatomy of Supra Renal level. Enumerate the hormones elaborated by zones of the Supra renal glands.

5. Anatomy of Maxillary sinus and classification of various pathologic diseases.

6. Radiological anatomy of Mediastinum.

7. Anatomical boundaries of Ant. mediastinum – Role of CT in detection & diagnosis of anterior Mediastinal Masses.

8. Radiological anatomy of Sella turcia and imaging features of suprasellar masses. [JUL 99/Dec 2010]

9. Describe the anatomy of Gastro-oesophageal junction & imaging of hiatus hernia. [JAN 00]

10. Segmental anatomy of Lungs. [JAN 01, 02,10]

11. Orbit [DEC 02]

12. Temporal bone and Internal Auditory Canal.

13. Middle ear.

14. Neck space CT anatomy. [JUN 04]

15. CSF pathways.

16. Blood brain barrier. [DEC 05]

17. Describe normal Anatomy of Knee as seen on MRI. [09]

18. Describe the normal anatomy of coronary arteries and discuss the role of MDCT in coronary artery diseases. [09]

19. Lymphatic drainage of Lungs.

20. Embryology of Gastrointestinal Tract.

21. Embryology of Genitourinary Tract.

22. Embryology of Diaphragm.

23. Radiological anatomy of Larynx and Pharynx.

24. Anatomy and lesions of parapharyngeal spaces.

25. Radiological anatomy of duodenum and relations.

26. Radiological anatomy of pancreas.

27. Peritoneal ligaments and mesentries (pathways of intra-abdominal disease spread).

28. Blood supply of large intestine.

29. Radiological anatomy of carotid artery and branches.

30. Anatomy of the Biliary tree and investigations for evaluation.

31. Anatomy of the Circle of Willis with Diagram. Enumerate the causes of Subarachnoid Hemorrhage. [2010]

32. Describe the Embryology and development of pancreas. Describe the imaging features of any one important congenital anomaly of pancreas. [2010]

33. Draw a labeled diagram of Broncho-pulmonary segments on CHEST PA and Lateral Radiograph of LEFT LUNG. [Dec 10]

34. Describe anatomical variations in Circle of Willis with the help of a diagram. Enumerate the sites of intracranial aneurysm. [Dec 2010]

35. Describe the basis of Hepatic segmental anatomy. Draw a diagram to depict various hepatic segments. [Dec 2010]

36. Describe the embryogenesis of human urinary system using labelled diagram. briefly discuss the basis of any 3 congenital defects of kidney. [June 11]

37. Describe with help of labeled diagram-vascular anatomy of testes. Explain briefly its clinical relevance in imaging of testicular malignancies. [June 11]

38. 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 June 13]

39. Briefly discuss with diagram the anatomy of Circle of Willis. What are the cause of Sub Arachnoid hemorrhage?. Discuss the role of imaging in a case of SAH. [3+3+4 June 13]

40. Describe with suitable diagram(s) the anatomy of peri and paranephric spaces. Enumerate tumors of perinephric spaces. Describe imaging features in any one of these. [4+2+4 Dec 13]

41. Draw a neat diagram showing the anatomy of retroperitoneum. What are various conditions affecting perinephric space. Describe the imaging features in three such conditions. [2+2+6 Dec 14]

BREAST

1. Breast Masses. [DEC 02]

2. Indications of X-ray mammography, Sonography and MRI of Breast. [02]

3. Discuss the recent advances in Mammography. [02]

4. Mammographic features of Carcinoma Breast. [02]

5. Sonography in solid breast masses. [June 08]

6. Benign breast disease . [JUN 04]

7. MRI in malignant breast lesions. [09]

8. Conventional mammography techniques.

9. X-ray Mammographic tube and Breast mammographic views. [DEC 06]

10. Mammography. [DEC 05, JUN 06]

11. Mammographic Tube & Mammography equipment. [JAN 00, DEC 04, JUN 09]

12. Discuss about mammography X-ray unit. [09]

13. Recent developments in mammography X-ray tube. [09]

14. Computer aided detection (CAD) in Mammography. [09]

15. Screening mammography — Current status. [09 and repeated on Dec 14]

16. Describe BIRADS classification. [09]

17. Ultrasound Elastography in Breast lesions. [09]

18. Describe imaging features of Breast cancer on Mammography, US and MRI. Briefly outline approach (by flow chart) in BIRADS 4 lesion. [June 2011]

19. Discuss the current indications of MRI in breast cancer evaluation. Discuss MRI features of breast cancer. [5+5 Dec 11]

20. Describe the various mammographic techniques in brief, types of mammographic euipments available & current recommendations for its use fr routine screening. [4+3+3 Dec 11]

21. Briefly describe diffusion protocol for MRI breast & characterization of benign and malignant breast lesion. [2x2x4 Dec 11]

22. Briefly describe the components if BIRADS system used for reporting of mammograms. Describe the indications and findings of various breast lesions on MRI. [4+2+4 Dec 12]

23. Describe imaging features of Breast cancer on Mammography, US and MRI. Briefly outline approach (by flow chart) in BIRADS 4 lesion. [Dec 14] (repeat from June 11)

24. 24. 5. a) BIRADS classification. b) Imaging features of Phyllodes tumour on mammography, uItrasound and MRI. [4+(2+2+2) Dec 15]

BIOSTATISTICS

1. Write short notes on: [4+2+2+2 Jun 12]

A.What is p value? What is its significance & clinical applications in research?

B. Sensitivity

C. Specificity

D. Positive and negative predictive value.

CARDIOVASCULAR SYSTEM

1. Doppler ultrasound versus MR angiography of carotid vessels. [JAN 97]
2. Cardiac and pericardial calcification.
3. Role of plain skiagram chest in the diagnosis of pulmonary Hypertension. [JUL 97]
4. Scimitar syndrome. [JUL 97, DEC 06/07]
5. Pathogenesis of ASD. [JUL 97, 98]
6. Atrial myxoma. [JUL 98]
7. Amyloid heart diseases. [98]
8. Imaging of the extracranial carotid arteries.
9. Pathogenesis and classification of Dissecting Aneurysm of Aorta.
10. Coarctation of aorta. [JUL 99; DEC 02,03]
11. Role of doppler study in lowest extremity arterial disease.
12. Imaging in aorto-arteritis. [JAN 00, DEC 02]
13. Causes and imaging features of pericardial effusion. [JAN 01]
14. Abdominal aortic aneurysm.
15. Role of Doppler in peripheral arterial diseases.
16. MRI in cardiac disease. [DEC 02]
17. Tetralogy of Fallot. [02]
18. Pulmonary Stenosis. [02]
19. Imaging in ischaemic heart disease. [DEC 03]
20. Aortic Dissection. OR Imaging and Intervention in Aortic dissection [DEC 02/03/09]
21. Chest X-ray in CHD. [JUN 04]
22. Plain X-ray cardiomyopathy

23. MRI in Cardiac Imaging [DEC 04/09]

24. Pathophysiology & imaging of Mitral valve disease. [DEC 04, JUN 05]

26. Congenital anomalies of aortic arch and major branches.

27. Coronary imaging.

28. Aortic aneurysm & Interventions. [JUN 05, DEC 05/06]

29. Superior Vena Cava obstruction.

30. Total anomalous pulmonary venous drainage. [DEC 02/05/07]

31. Doppler evaluation of deep veins of leg.

32. Takayasu's disease or Non-specific aortoarteritis. [JUN 05/06/07]

33. Left to right shunts/Extracardiac Left to Right shunts.[05/06]

34. Enlarged Left atrium. [06]

35. Ebstein's anomaly. [JUN 07, DEC 09]

36. Radiological approach in Cyanotic heart disease. [DEC 07]

37. Describe the normal anatomy of Cornonary arteries and discuss the role of MDCT in coronary artery disease. [June 2008]

38. Causes & imaging features of constrictive pericarditis. [DEC 09]

39. Enumerate congenital anomalies of IVC. Comment on role of MR I in their diagnosis. [09]

40. MRI of cardiac tumors. [09]

41. Enumerate various types of transposition of great vessels. Describe imaging features of total anomalous pulmonary venous drainage. [09]

42. Interventional management of deep vein thrombosis. [09]

43. Imaging in Intermittent claudication of Lower limb. [02]

44. Imaging in 14 years old with hypertension. [09]

45. Describe diagnostic features on chest radiograph which can help in evaluation congenital heart disease. [09]

46. Imaging of PDA. [09]

47. Assessment of correctness of positioning of various catheters and tubes as seen on chest radiographs. [09]

48. Cardiac CT. [09]

49. Discuss the role of MR in evaluation of pericardium and its pathologies. [June 2008]

50. What are the causes of pulmonary venous hypertension? Describe plain X-ray findings in pulmonary venous hypertension. [09]

51. Radiological approach in Acyanotic heart disease. [09]

52. Total Anomalous Pulmonary Venous drainage. [09]

53. Imaging features on chest radiograph of various acyanotic congenital heart diseases. [2010]

54. Classify peripheral vascular malformation. Describe sonographic color doppler, MRI and angiographic features of venous malformation. Mention suitable embolic material for their interventional management. [Dec 2010]

55. Enumerate various tumors of heart. Describe the imaging features of myxoma of heart. [Dec 2010]

55. Describe the venous anatomy of lower limb with the help of a diagram. Describe the technique of color doppler imaging of lower limb veins and imaging features of deep Vein thrombosis. [Dec 2010]

56. Describe the radiological findings of Coarctation of aorta on plain radiograph, barium contrast study, DSA and MRI . Briefly describe role of interventional radiology in it. [June 2011]

57. Describe plain radiographic findings in Rheumatic heart disease in Mitral Stenosis. Mitral regurgitation with mitral stenosis & Aortic stenois. [June 2011]

58. Classify aortic dissection. Describe the role of CT angiography in diagnosis and management of aortic dissection. [2+5+3 Dec 11]

59. Enumerate causes of acute chest pain in an elderly patient. Briefly describe CT findings in 3 common likely conditions. [1+3+3+3 Dec 11]

60. Classify congenital cardiac abnormalities. Briefly discuss abnormalities of Situs and Looping (or topology) with their imaging features. [2+4+4 Jun 12]

61. 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 Jun 12]

62. 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 inmanagement of Coarctation of Aorta. [2+(2+2+2)+2 Jun 12]

63. How will you radiologically investigate a 60 year old hypertensive & 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. [3+5+2 Jun 12]

64. Classify right sided aortic arch abnormalities. Draw suitable diagrams to describe these anomalies. Discuss imaging features in dysphagia lusoria. [2+5+3 Jun 12]

65. Enumerate causes and briefly describe the role of imaging in diagnosis and management of thoracic aortic aneurysm in a patient below the age of forty years. [2+4+4 Dec 12]

66. Enumerate the radiographic features of enlarged right atrium and enlarged left atrium. Briefly describe lung field changes in case of mitral stenosis [2+3+5 Dec 12]

67. Briefly describe the anatomy of the pericardium. List various causes and imaging findings in a case odd constrictive pericarditis. [2+2+6 Dec 12]

67. Describe the arterial anatomy of carotid vascular system with the help of labeled diagrams. Discuss the role of ultrasound & color Doppler imaging in evaluation of extra cranial carotid occlusive disease. [2+2+6 Dec 12]

68. 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 Dec 12]

69. Enumerate the causes of left atrial enlargement. Discuss its findings on chest radiograph. What other imaging techniques will be useful in making the diagnosis? Briefly highlight the significance of each. [2+3+2+3 Jun 13]

70. What is Eisenmenger Syndrome? Enumerate the conditions that may produce this syndrome. Discuss its key radiological features. [2+2+6 Jun 13]

71. Enumerate any four clinical conditions which produce a left to right cardiac shunt. Discuss the key radiological features in any two. What would be the radiographic signs of the possible hemodynamic complications, if the condition remains untreated?. [2+3+3+2 Dec 13]

72. Enumerate the radiologically-evident pericardial afflictions on a chest radiograph. Described their key radiological findings. (2+8 Dec 13)

73. Discuss the diagnostic approach in a 7 year old boy presenting with a progressive pulsatile swelling in the right forearm. Describe the imaging findings with Doppler and MRI. [3+3+4 Dec 13]

74. Discuss the pathophysiology of venous incompetence in lower extremity. What are common locations of perforators? Describe technique & imaging features in Doppler examination of venous incompetency in lower extremity. [2+3+5 Dec 13]

75. What are the indications of coronary CT angiography? Describe the techniques of performing coronary CT angiography. What do you understand by Calcium score & what is its clinical relevance? [2+5+3 Dec 13]

76. Enumerate the causes of Aortic aneurysm in a 30 yr old male patient. How will you differential b/w these various causes? Discuss the findings & information you shall highlight in a case which is to be manages using an aortic stent graft. [2+5+3 June 14]

77. Enumerate the various causes of bilateral weak femoral arterial pulsations in a 20 year old female patient. Describe the imaging findings in any two important causes. [2+4+4 June 14]

78. Define and enumerate causes of restrictive cardiac diseases. Discuss the role of various imaging modalities along with imaging features in two such diseases. [1+2]+[3+4 Dec 14]

79. A 50 yr old male patient in emergency with acute chest pain. Discuss the likely causes and approach to diagnose such patients. Discuss the role of CT angiography in these patients. [5+5 Dec 14]

80. a) Doppler assessment of AV fistula of hemodialysis access. b) Role of MDCT in cyanotic heart disease [5+5 Dec 14]

81. a) Vascular compression syndromes in abdomen and pelvis [5 Dec 14]

82. a) Role of different imaging modalities in evaluation of a case of limb ischemia. b) Role of interventional procedures in these patients. [5+5 June 15]

83. a) Enumerate causes of thoracic aortic aneurysm. b) Role of CT angiography in the diagnosis and management of aortic dissection. [June 15]

84. a) Define pulmonary hypertension b) Enumerate its causes and describe the imaging findings [June 15]

85. 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 DVT [June 15]

86. a) Enumerate various heart diseases with cyanosis and increased pulmonary circulation b) Imaging features in any two such diseases. [June 15]

87. Imaging features and interventions in vein of Galen aneurysmal malformation. [5+5 Dec 15].

88. a) What is truncus arteriosus? b) Its classification, imaging features on chest X-ray echocardiography and MRI. [2+(2+2+2+2) Dec 15]

89. a) Enumerate the causes of SVC obstruction. b) Its pathophysiology and imaging features. [3+(3+4) Dec 15]

90. a) Pathophysiology of venous incompetence in lower extremity. b) What are common locations of Perforators? c) Colour Doppler findings and interventions of venous incompetency in lower limb. [2+2+(3+3) Dec 15] [Repeat from Dec 2013]

CHEST

1. Describe briefly the pathophysiology of Pulmonary Embolism. Give in detail the imaging modalities for diagnosis of this entity and their relative merits and demerits. [JAN 97]

2. Wegner's granulomatosis [JAN 97, JUN 07]

3. Pathogenesis and imaging of pulmonary sequestration. [JAN 97, DEC 02, JUN 06, 10]

4. Role of imaging in bronchogenic carcinoma. [JUL 97]

5. Discuss in brief the differential diagnosis of mediastinal masses and their radiological appearances.

6. Alveolar Proteinosis. [98]

7. Anterior mediastinal mass lesions. [02]

8. Anterior mediastinal masses in children. [09]

9. Imaging of posterior mediastinal masses. [JUL 99, DEC 03]

10. Pleural tumours. [JUL 98]

11. Diagnosis of pulmonary infarction.

12. Pulmonary oedema. [JUL 99, 02]

13. Adult Respiratory Distress Syndrome (ARDS). [JUL 99, DEC 02]

14. Sarcoidosis. [JUL 99, DEC 04]

15. Differentiating features of intra and extralobar sequestration of lung. [JAN 00]

16. Pulmonary plethora and its distinctive features.

17. MRI in bronchogenic carcinoma.

18. What are clinical applications of CT in evaluation of non-neoplastic lung diseases? [JAN 01]

19. Pan-acinar Emphysema. [02]

20. Tracheoesophageal fistula. [DEC 02]

21. Evaluation and DD of Hilar Mass. [02]

22. Solitary Pulmonary nodule. [02]

23. Metastatic tumors of Lung. [02]

24. Silicosis. [02]

25. Bronchopulmonary Aspergillosis. [02]

26. Ground glass opacity HRCT- Significance and DD. [DEC 02, 03]

27. Unilateral opaque hemithorax. [02]

28. Unilateral Hyperlucent hemithorax. [06]

29. Pulmonary thromembolism. [DEC 03, JUN 06]

30. Imaging in acute chest trauma. [02]

31. Lung lesions in AIDS. [98]

32. Atypical Pneumonia. [JUN 03]

33. HRCT in ILD . [JUN 04]

34. Pulmonary lesions in AIDS .

35. Eventration of diaphragm . [DEC 04]

36. Pulmonary Aspergillosis .

37. Hyaline membrane disease. [DEC 05]

38. Imaging in central bronchogenic carcinoma .

39. Radiology of primary pulmonary Koch's. [02, JUN 05,06]

40. Salient features of radiology of pulmonary metastases .

41. Raised left Dome of Diaphragm.

42. Radiological feat. in Congenital Cystic Adenomatoid Malformation of the lung. [JUN 07]

43. Role of chest radiograph and CT chest in AIDS. [DEC 07/09]

44. Anterior mediastinal masses in children.

45. Anterior Mediastinal Masses. [02]

46. Azygos lobe.

47. What are the causes of pulmonary venous hypertension?. Describe plain X-ray findings in pulmonary venous hypertension. [June 08]

48. Discuss pathophysiology and imaging features in respiratory distress in newborn. [June 08]

49. Imaging in pulmonary the thrombo-embolism. [09]

50. MDCT & Scintigraphic evaluation of pulmonary embolism. [09]

51. Enumerate causes of usual interstitial pneumonitis. Describe HRCT Endings in idiopathic pulmonary fibrosis.

52. Discuss in detail imaging features of thoracic lymphoma. [June 08]

53. CT features of Thoracic Lymphoma. [09]

54. Imaging of extra nodal presentations of non Hodgkin lymphomas. [09]

55. Role of imaging in a new born with respiratory distress. [06,09]

56. Discuss pathophysiology and imaging features in respiratory distress in newborn. [09]

57. HRCT in Diffuse lung disease. [06]

58. HRCT in occupational lung diseases. [09]

59. HRCT in pulmonary tuberculosis. [09]

60. Role of chest radiography in emergency situations. [June 2008]

61. DD and imaging features of para-vertebral shadow. [2010]

62. Describe the role of MDCT in staging of carcinoma of lung. [2010]

63. Imaging findings in germ cell tumor of the mediastinum and discuss in brief the DD. [2010]

64. Radiological findings of the Pulmonary complications of HIV infections. [2010]

65. Describe the chest radiograph and HRCT findings in Sarcoidosis. [09, Dec 10]

66. Describe etiopathogenesis, common causes, plain film and CT features of lymphangitis carcinomatosis. [June 2011]

67. Describe plain radiographic and CT findings of rt. upper lobe pulmonary collapse. [June 11]

68. Discuss the role of CT and MRI in staging of lung cancer. [June 2011]

69. Describe the radiological findings of pulmonary complications in pts infected with HIV. [June 11]

70. Classify diaphragmatic hernias. Describe the radiological means to establish the diagnosis with relevant imaging findings. [June 11]

71. Enumerate various germ cell tumors of mediastinum. Discuss their imaging features. [3+7 Dec 11]

72. Enumerate the causes of Acute Respiratory Distress Syndrome. Give in detail and management of aortic dissection. [3+7 Dec 11]

73. Discuss the etiopathogenesis, imaging features & DD of silicosis. [3+4+4 Dec 11]

74. Define pulmonary sequestration. Describe its types & discuss CT findings and role of angiography in it. [2+1+4+3 Dec 11]

75. 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 Jun 12]

76.Classify pleural tumours. Briefly discuss chest radiographic & CT findings of malignant mesothelioma. [3+3+4 Jun 12]

77. Enumerate various diseases caused by inhalation of inorganic dust. Briefly describe chest radiographic and CT findings of two most common such diseases. [2+4+4 Jun 12]

78. 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 Jun 12]

79. A 25 year old male presented with life threatening haemoptysis. Draw 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. [2+(2+4+2) Jun 12]

80. Enumerate the causes of superior vena cava syndrome in an adult. Briefly describe the role and findings of various imaging modalities in a case of central bronchogenic carcinoma. [2+8 Dec 12]

81. Describe various HRCT lung findings seen in interstitial lung disease with the help of diagrams. Describe HRCT features of usual interstitial pneumonia. [6+4 Dec 12]

82. Enumerate various causes of respiratory distress in a new born. Briefly describe imaging findings in congenital lobar emphysema and pulmonary sequestration. [2+4+4 Dec 12]

83. Enumerate the causes of hemoptysis in an adult patient. Briefly discuss the indications, techniques and complications of radiological interventions in this conditions. [2+2+4+2 Dec 12]

84. Define pulmonary edema. What is its pathophysiology? Enumerate its causes. Describe the plain radiographic findings in pulmonary edema. [1+2+3+4 Jun 13]

85. Write imaging findings of the following: a) Bronchial Carcinoid b) BOOP c) McLeod's Syndrome.

86. Define Sarcoidosis. What are the various stages of thoracic Sarcoidosis? Discuss the radiological manifestations of thoracic Sarcoidosis [2+2+6 Jun 13]

87. What do you understand by the term 'extramedullary hematopoesis'? Enumerate its causes. Discuss its plain plain film and cross sectional imaging findings. [2+2+3+3 Jun 13]

88. Discuss briefly the pathophysiology of pulmonary embolism. Give in detail the imaging modalities for diagnosis of this entity & their relative merits & demerits. [4+4+1+1 Jun 13]

89. State the radiological basis of differentiating a mediastinal mass from an intrapulmonary mass. How would you localize the compartment of a mediastinal lesion? Discuss briefly the differential diagnosis of mediastinal lesions in anterior compartment. (2+3+5 Dec 13)

90. A 65 year-old chronic smoker presents with hemoptysis. The chest radiograph shows a well-defined cavitating intrapulmonary mass with spiculated margins in the left upper zone. How would you further evaluate this patient and determine the extent of disease? What would be the signs you would look for to decide if the lesion is operable? [8+2 Dec 13]

91. Describe the changes on a chest radiograph in collapse of different lobes in both lungs. [10 Dec 13]

92. Radiological findings in: a) Sequestration of lung b) Pulmonary hypertrophic osteoarthropathy. [5+5 Dec 13]

93. Define SPN. Enumerate its causes. Discuss the radiological work up of a solitary nodule highlighting the features which enable to differentiate b/w benign and malignant nodules. [1+2+7 June 14]

94. A 30-yr-old female patient presented with h/o cough and one episode of hemoptysis. Her chest radiograph showed a cavitatory lesion measuring 3 cm in left mid zone. Enumerate the possible causes. How will you proceed with radiological evaluation in this case? [2+8 June 14]

95. Name the anatomical structures which contribute to the hilar shadow seen on a frontal chest radiograph. Enumerate the causes of unilateral large hilum in a 50 yr old male. Describe the imaging findings in any 2 pathological causes. [2+2+3+3 June 14]

96. A 20-yr-old female with history of fever showed an anterior mediastinal and right hilar mass on chest radiograph. Enumerate the causes. Discuss the radiological finding which shall help you in formulating your differential diagnosis. Describe in brief features which are useful in differentiating Hodgkin's disease and non-Hodgkin's lymphoma. [2+6+2 June 14]

97. Describe the radiological anatomy of diaphragm. Enumerate various types of diaphragmatic hernias. Discuss the imaging findings in any two hernias which can be seen in a 40 yr old patient. [3+1+3+3 June 14]

98. Enumerate causes of cystic mediastinal lesions. Describe imaging features of any 2 conditions. [2+4+4 Dec 14]

99. a) Castleman's disease b) Role of Dual energy CT in pulmonary embolism. [5+5 Dec 14]

100. Enumerate causes of solitary pulmonary nodules. Discuss the role of various newer imaging techniques in assessment of these lesions. [2+8 Dec 14]

101. Discuss various chest complications in a post-operative patient. Describe in detail imaging features in any two conditions. [4+3+3 Dec 14]

102. A 55 yr male patient presents with left opaque hemithorax. Enumerate the likely causes and discuss the imaging features in two common conditions. [2+4+4 Dec 14]

103. Discuss various types of aortic aneurysms. Described various modalities to investigate such patients with advantages and disadvantages of each. Discuss briefly role of interventional procedure. [2+6+2 Dec 14]

104. a) Takayasu's arteritis b) Role of RFA in chest tumors. [5+5 Dec 14]

105. Etiopathogenesis, clinical forms, complications and radiological features of silicosis. [June 15].

106. a) Causes of mediastinal lymphadenopathy. b) Role of imaging in their differentiation. [June 2015]

107. 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. [June 2015]

108. Causes of pleural masses and their imaging features. [June 2015]

109. a) Anatomic location and patterns of diaphragmatic rupture. b) Role of imaging in its evaluation. [June 2015]

110. a) Enumerate pulmonary manifestations in patients with HIV. b) Chest X-ray and CT features in Pneumocystis carinii pneumonia. [3+(3+4) Dec 15]

111. Radiological features of: a) McLeod's Syndrome b) Vanishing Lung Syndrome c) Scimitar syndrome. [3+3+4 Dec 15]

112. Pathophysiology, imaging features, complications and differential diagnosis of Respiratory Distress Syndrome of New born. [2+3+2+3 Dec 15]

113. Role of CT and MRI in staging of lung cancer. [5+5 Dec 15] [Repeat from June 11]

114. a) Antenatal diagnosis of congenital. diaphragmatic hernia. b) Imaging findings in gestational trophoblastic disease. [5+5 Dec 15]

CONTRAST MEDIA

1. MR contrast media. [JAN 97, DEC 04, JUN 05]

2. Discuss about various MR contrast media and their mechanism of action. [08]

3. Low osmolar contrast media. [JUL 97]

4. Adverse drug reactions caused by I.V. Contrast media. [JAN 01]

5. Classify idiosyncratic reactions resulting from contrast media administration. Describe the management of life threatening adverse reactions. [08]

6. Non-ionic contrast media. [DEC 05]

7. Management of adverse contrast reactions. [JUN 05]

8. Recent contrast media used in USG. [JAN 00]

9. Role of Ultrasound Contrast Agents in gastro-intestinal diseases. [JUL 98, DEC 04]

10. Ultrasonography contrast media. (OR) Echo enhancing agents. [JUN 06, 09]

11. Contrast induced nephropathy. [09]

12. MR contrast media in Hepato biliary system/MR contrast agents for Hepatic Imaging. [06/09]

13. Emergency drugs with doses that should be available in radiology department. [09]

14. Adverse reactions of MR contrast media. [2010]

15. Enumerate various ultrasonic contrast media. Describe their principle and clinical application in evaluation of Hepatic mass lesion. [Dec 2010]

16. Write short notes- a. Management of severe contrast reaction. b. Nephrogenic systemic fibrosis. [5+5 Dec 12]

17. 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 Jun 13]

18. Discuss the role of contrast enhanced MRI and Organ specific MR contrast media. [3+7 Jun 13]

19. Management of acute idiosyncratic contrast reactions.[June 15]

20. a) What is the principle of MR contrast enhancement. b) Describe any two organ specific contrast agents and their clinical applications. [June 15]

21. a) Define contrast induced nephropathy (CIN). b) Conditions predisposing to CIN and the precautions to be taken to avoid ClN. [1+(5+4) Dec 15]

ENT

1. Laryngeal carcinoma. [DEC 03, JUN 04]

2. Imaging of temporal bone/Petrous bone. [DEC 05, JUN 06]

3. Describe the imaging features of juvenile nasopharyngeal angiofibroma. Discuss the role of radiological intervention in its management. [6+4 Dec 12]

4. Enumerate the infrahyoid neck spaces. Discuss the imaging features of pathologies of the carotid space. [4+6 June 14]

5. How would you evaluate a patient of hyperparathyroidism on imaging? Enumerate the findings on plain films, CT and Scintigraphy. [4+2+2+2 June 14]

6. Staging and imaging features of juvenile nasopharyngeal angiofibroma. [10 June 15]

7. a) Enumerate the infrahyoid spaces b) Imaging features of carotid body tumour [2+8 Dec 15]

GASTROINTESTINAL SYSTEM

1. Radiologic features of gastric malignancies. [JAN 97]

2. Describe in brief the pathology, role of imaging & radiological features in GI tract lymphomas. [JUL 97, 98]

3. Necrotising enterocolitis. [JUL 98]

4. Carcinoid tumours. [JUL 99]

5. Role of Radiology and Imaging in intestinal ischemia. [JAN 00]

6. Radiological profile of ulcerative colitis. [JAN 01]

7. Imaging in a Vomiting infant. [02]

8. Intervention in upper GI bleeding. [DEC 02]

9. Imaging in postoperative stomach.

10. Anorectal Malformations. [02]

11. Intusssusception. [02]

12. Gastric lymphoma . [DEC 02/03/06/07]

13. Malabsorption syndrome. [02]

14. Gastrointestinal lymphoma. [JUN 04]

15. USG in appendicitis.

16. Non-tubular inflammatory bowel disease. [DEC 05, 06]

17. Critical appraisal on role of small bowel enema, CT & MRI enteroclysis. [JUN 07]

18. Colonic strictures – etiology and role of imaging in diagnosis of structures. [DEC 07]

19. Role of CT in Epiploic Appendigitis.

20. Internal Hernias.

21. Imaging of Acute Appendicitis.

22. Enumerate causes of lower gastrointestinal bleeding. Mention current imaging techniques in their evaluation Describe the role of MDCT in its evaluation. [09]

23. Imaging features of small bowel abnormalities in newborn. [09]

24. CT vs MR enteroclysis for assessment of small bowel diseases. [09]

25. Describe imaging of low intestinal obstruction in a neonate. [09]

26. CT & Endoscopic ultrasound staging of Esophageal carcinoma. [09]

27. Radiological evaluation of suspected Small Bowel obstruction. [09]

28. Describe the technique and ultrasound features in acute appendicitis. Also describe ultrasound features of conditions mimicking acute appendicitis. [June 2008]

29. Discuss various causes and imaging features in stricture of lower end of esophagus. [June 2008]

30. Describe imaging features in a case of intestinal perforation. [2010]

31. Describe the clinical features, sonographic and CT appearances in acute Appendicits. [Dec 2010]

32. Discuss the role of plain radiograph , barium studies , USG & CT abdomen in diagnosis of gastrointestinal TB. [2+3 + 2+3 June 2011]

33. Describe in brief the role of plain radiography , enteroclysis, USG, CT and MRI in evaluation of small bowel obstruction. [June 2011]

34. Enumerate causes of mesentric ischaemia. Briefly discuss plain radiographic, USG, CT findings and the role of intervention in this condition. [2+2+2+2+2 Dec 11]

35. Name the various motility disorders of esophagus. Discuss pathophysiology and imaging features of cardiac imaging. [2+3+5 Dec 11]

36. Enumerate causes of multiple nodular filling defects in small bowel. Discuss the imaging features of small bowel lymphoma. [3+7 Dec 11]

37. 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 Jun 12]

38. Enumerate various infections & neoplasms affecting gastrointestinal tract in AIDS. Briefly describe barium meal follow through and CT features of AIDS lymphoma. [3+7 Jun 12]

39. Classify polypoidal lesions of the colon. Mention radiological differences between benign and malignant polyps. Discuss salient imaging features of various types of adenomatous polyps. [2+3+5 Jun 12]

40. Enumerate causes of malabsorption syndrome. Describe imaging features in tropical sprue. Briefly discuss its complications. [2+6+2 Jun 12]

41. Describe technique of MDCT and 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 Jun 12]

42. 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 Jun 12]

43. Enumerate the normal and abnormal extrinsic impressions on the cervical & thoracic parts of the esophagus during Barium swallow examination. Discuss the possibilities in a 56-year-old woman presenting with dysphagia. Describe briefly the key radiological findings in any 3 conditions. [2+2+2+2+2 Dec 13]

44. A 70 year old man presented with lower GI bleed. Mention various causes of lower GI bleed and briefly describe role of contrast studies, CT scan imaging & intervention in it. [2+2+2+2+2 Dec 13]

45. Describe the technique of MR Enterography. Compare its benefits & limitations vis-a-vis conventional contrast studies and CT enteroclysis. [5+5 Dec 13]

46. Enumerate various imaging techniques employed for radiological evaluation of small bowel pathologies. Discuss the merits and demerits of each technique. Discuss in brief, CT findings in a case of ileocecal T.B. [2+5+3 June 14]

47. Enumerate various conditions associated with polypoidal lesions in the large bowel. How will you distinguish b/w benign and malignant polyps on imaging? Discuss the merits and demerits of virtual CT colonoscopy in a case of suspected familial polyposis coli. [2+4+4 June 14]

48. Technique to evaluate the stomach and imaging features of stomach malignancies.[June 15]

49. Pathophysiology and imaging features in small bowel lymphoma. [10 June 15]

50. a) Characteristic pathological features of gastrointestinal stromal tumors along with the imaging findings. b) Management options and post treatment follow up of these tumors. [(3+3)+(2+2) Dec 15].

51. a) Pathophysiology and imaging features in inflammatory bowel disease (IBD). b) Role of CT enteroclysis in IBD. [(3+4)+3 Dec 15]

GENITOURINARY SYSTEM

1. Differentiation of Renal Cyst and Renal tumour by I.V.P. [JAN 97]

2. Diagnosis of Urinary Bladder's Tumours. [97,02]

3. Discuss the role of imaging in Renal trauma.

4. Polycystic disease of kidneys. [JAN 97, JUN 04]

5. Posterior urethral valves. [JUL 97, JUN 06]

06. Epispadias extrophy complex.

07. Pathology of renal neoplasms in the paediatric age group.

08. Acute scrotum [JUL 99, 02]

09. Cystic diseases of the kidney.

10. Child with UTI. Provide a protocol for imaging and mention their features. [JAN 00]

11. How will you investigate a case of painless hematuria? What is role of Radiologist in its management?

12. Imaging of prostate. [JAN 00, JUN 04]

13. Prostatic tumors. [JUN 03]

14. Testicular germ cell tumors. [JAN 01]

15. Radiological diagnosis of congenital lesions of kidney.

16. Interventions in upper urinary tract obstruction. [01]

17. Imaging in renal malignancies. [04]

18. Role of Doppler in testicular tumor. [DEC 04]

19. Vesicoureteric reflux. [DEC 04/09]

20. Nephrocalcinosis. [02,04,06]

21. Imaging in renal malignancies.

22. Renal tuberculosis. [Dec 05/07/09, Jun 07,Dec 14]

23. Ureterocoele. [02, 05]

24. Discuss the pathology of renal hypertension & radiological investigations for the same. [JUL 98]

25. Discuss the pathophysiology of renovascular HTN and role of imaging. [02]

26. Diagnosis of renal hypertension – present day approach . [JUN 05]

27. Imaging in evaluation of renovascular hypertension in a ten year old male. [09]

28. Discuss the role of various imaging modalities in a suspected case of reno vascular hypertension. [June 2008]

29. Imaging of unilateral scrotal swelling.

30. Diagnosis of non malignant prostatic enlargement .

31. Angiomyolipoma of the kidney . [JUN 06]

32. Neurogenic bladder .

33. Unilateral large kidney in a child .

34. Renal Cell Carcinoma. [JUN 04]

35. Emphysematous pyelonephritis.

36. Doppler evaluation in male impotence.

37. Classify cystic diseases of kidney and discuss role of ultrasound in these lesions. [JUN 07]

38. Enumerate causes of unilateral small kidney, Describe the role of imaging in its diagnosis. [DEC 09]

39. Mention ultrasound and Doppler findings in varicocele. Describe the role of intervention in its management. [09]

40. Enumerate the causes of Varicocele. Write US technique and US and color Doppler features in Varicocele. [June 2008]

41. MR staging of prostate carcinoma. [09]

42. Penile doppler. [06]

43. Discuss imaging of erectile dysfunction. [09, 10]

44. Color Doppler evaluation of erectile dysfunction. [June 08]

45. Imaging in Transplant kidney. [02]

46. Enumerate various investigative modalities for the transplanted kidney & give the normal findings in each of them. [JUL 99]

47. Doppler in renal transplant [DEC 02/09, JUN 04]

48. Role of color Doppler and ultrasound in post renal transplant patient. [09]

49. How would you evaluate donor kidney for renal transplant. Discuss role of US and Scintigraphy in various types of renal graft dysfunction. [June 2008]

50. Imaging in Non tubercular renal infections [December 2008]

51. Non vascular Interventions in upper urinary tract. [09]

52. Embryology, clinical significance and imaging of undescended Testis. [2010]

53. Indications, imaging features and limitations of imaging in erectile dysfunction. [2010]

54. Describe the blood supply of testes with the help of diagram. Enumerate various types of testicular torsions. Describe imaging findings in each. [Dec 2010]

55. Discuss the etiopathogenesis and radiological features of renal tuberculosis. [Dec 2010]

56. Enumerate the indications and describe the techniques of color doppler in Renovascular hypertension. [Dec 2010]

57. Enumerate various complications of Renal transplant and discuss their imaging findings. [Dec 2010]

58. Enumerate causes of hypertension in 10 yr old male child . Outline radiological approach in such a case. Role of MDCT and intervention in renal hypertension. [June 2011]

59. What is vesico-ureteric reflux. Discuss its causes and grading . Briefly describe role of imaging in this condition. [June 2011]

60. Enumerate causes of unilateral small Kidney. Discuss role of imaging in establishing the diagnosis. [June 2011]

61. Discuss the role of imaging in uraemia, citing the specific role and limitations of conventional radiography, US, CT, MRI and renal scintigraphy. [June 2011]

62. Discuss the grading of renal trauma. Describe the role of imaging in its evaluation. [4+6 Dec 11]

63. Briefly describe the penile arterial flow physiology. Discuss the technique and utility of duplex sonography in evaluation of erectile dysfunction. [3+4+3 Dec 11]

64. Describe venous drainage of testis. Discuss imaging features & interventions in varicocele. [3+4+3 Dec 11]

65. Enumerate various vascular complications in renal transplant. Briefly discuss the role of color doppler, CT, MRI and intervention in these conditions. [1+3+2+2+2 Dec 11]

66. Briefly describe MRI and MRS findings in prostatic carcinoma and its staging. Discuss role of TRUS biopsy. [4+4+2 Dec 11]

67. What are common causes of medially placed ureters? Discuss various associations. IVU, CT & MRI findings of retroperitoneal fibrosis. [2+2+2+2+2 Jun 12]

68. Enumerate causes of urethral strictures. Briefly discuss role ascending urethrogram in strictures due to trauma. Name common complications of urethral strictures. [3+5+2 Jun12]

69. Enumerate various ovarian tumors of stromal origin. Briefly discuss imaging features of serous and mucinous cystadenocarcinoma and cystadenoma. [3+2+2+3 Jun 12]

70. Describe technique of TRUS guided biopsy of prostate. Briefly mention role of contrast imaging in investigation & biopsy of a prostatic lesion. [8+2 Jun 12]

71. Enumerate the causes of hematuria in a 50yr old male patient. Briefly discuss the role of various imaging modalities in diagnosis and staging of renal cell carcinoma. [2+4+4 Dec 12]

72. Discuss the role of imaging in uremia, citing the specific role and limitation of conventional radiography, sonography, CT, MR & renal scintigraphy. [5+2 Dec 12]

73. List the anatomical sites which may become afflicted in renal TB. Discuss their radiological features in brief. [2+8 Jun 13]

74. A 24 year old with presenting features of low grade fever, lassitude and aseptic pyuria is referred to you for radiological work up. What is the likely diagnosis?. How would you investigate this patient?. Described the key radiological signs, specifying the changes in early, intermediate & late stages of the disease. [1+3+6 Dec 13]

75. A 38 year old RTA victim is brought to you from the casualty with history of frank hematuria. How would you evaluate this patient?. Discuss the possibilities with their key radiological findings. [4+6 Dec 13]

76. Describe penile circulation. What are the causes of male impotence? Discuss the role of Color doppler imaging in impotence. [4+2+4 Dec 13]

77. A 40yr-old-female pt. presented with complaints of vague right lumbar pain. An USG revealed a cystic lesion in right kidney. She was advised to undergo CT scan by the radiologist for further evaluation. Enumerate possible causes. Discuss the CT protocol & findings in various lesions. [2+2+6 June 14]

78. What are the causes of painless hematuria in a 50 yr old male patient? Discuss the imaging features and role of interventional radiology in two such pathologies. [2+4+4 Dec 14]

79. a) Renal tuberculosis. [5 Dec 05/07/09, Jun 07,Dec 14]

80. A young adult male presents with painless testicular mass. What is the differential diagnosis and imaging features in the most common cause? [June 15]

81. a) Pathogenesis and imaging features of xanthogranulomatous pyelonephritis. b) Imaging features of abdominal lymphangioma. [5+5 June 15]

82. a) Classify renal injuries. b) Imaging features and interventions in them. [2+(4+4) Dec 15].

83. Important differential diagnosis in a child with acute scrotum and their imaging features. [2+8 Dec 15]

84. a) Bosniak classification of renal cysts. b) Imaging features of renal lymphoma. [5+5 Dec 15]

85. MR imaging of normal prostate: Technique, zonal anatomy. b) Role of MR imaging in staging of carcinoma prostate. [3+3+4 Dec 15]

HEPATOBILIARY SYSTEM

01. Choledochal cyst. [JAN 97, JUL 98, DEC 02/05]

02. Discuss the etiology, Classification, imaging features and complication of choledochal cyst. [June 2008]

03. Budd-chiari syndrome. [JAN 97, DEC 04]

04. Ultrasonography features in cirrhosis liver with portal hypertension. [JUL 98]

05. Role of imaging in obstructive jaundice. [JUL 99]

06. Hepatobiliary intervention in Obstructive jaundice. [JUN 03]

07. Non-Invasive evaluation Of Portal Hypertension. [02]

08. Discuss Portal Hypertension: its radiological diagnosis and interventional therapy. [JAN 00, DEC 02, 03,05; JUN 06, 09]

09. Neonatal jaundice. [02]

10. MRCP in obstructive jaundice . [DEC 02]

11. Cystic lesions of liver . [DEC 04]

12. Benign lesions of the liver. [DEC 05, JUN 06]

13. Therapeutic interventions in liver tumors. [JUN 05]

14. Triple phase Portography. [JUN 06]

15. Doppler in hepatic cirrhosis. [DEC 07]

16. Colour Doppler and CT features in portal hypertension. [09]

17. Interventions in Hepatic tumors. [DEC 06]

18. Interventional management of Hepatocellular carcinoma. [09]

19. MRI features of hepatic hemangioma. Briefly discuss role of radiology in treatment of hepatic haemangioma. [09]

20. Radio frequency ablation of hepatic neoplasm. [09]

21. Describe CT features of liver trauma and discuss role of intervention in this. [June 2008]

22. Enumerate the causes of obstructive Jaundice. Describe technique of MRCP and its role in obstructive Jaundice. [Dec 2010]

23. What is the role of diagnostic imaging modalities in Cholangio.Ca. Discuss the morphological findings and the significance of various modalities in management of the disease. [Jun 11]

24. Enumerate the causes of SOL in liver . Describe the USG features in any 3 of them. [Jun 11]

25. Mention the various interventional techniques used in HCC. Briefly discuss indications and technique of two commonly employed techniques. Outline protocol for follow up in a case of HCC. [1+8+1 Dec 11]

26. Enumerate the most common cause of a 6 year old male presenting 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. [1+7+2 Jun 12]

27. 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 Jun 12]

28. Enumerate benign hepatic masses. Describe imaging features (USG, CT, & MRI) of two commonly encountered such lesions. [2+4+4 Jun 12]

29. Describe the segmental anatomy of liver in cross sectional imaging. Discuss the role of triple phase CT in differentiating focal lesions in cirrhotic liver. [4+6 Dec 12]

30. Enumerate the common causes of obstructive jaundice. Discuss the role of various imaging modalities in its diagnosis. [2+8 Jun 13]

31. Describe etiopathogenesis of biliary atresia. Discuss the role of ultrasound, MRI and scintigraphy in assessment of biliary atresia. [2+3+2+3 Dec 13]

32. Describe pre-transplant imaging in a liver donor. What are common complications after liver transplant? Discuss the role of intervention in treating complications. [3+2+5 Dec 13]

33. What are various interventional techniques available to treat hepatic malignancies? Discuss the role of chemoembolization and radioembolization in hepatic malignant lesion. [3+4+3 Dec 13]

34. Describe the anatomy of portal venous system. What are the causes of portal hypertension? Describe the role of intervention in portal hypertension. [4+2+4 Dec 13]

35. Enumerate the causes of arterial phase enhancing focal lesions in the liver. Discuss the role of MDCT and MRI in DD of these lesions. [2+4+4 June 14]

36. a) Von Meyenburg complex. b) Imaging features of fibrolamellar HCC. [5+5 Dec 14].

37. US 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 Dec 14]

38. Imaging techniques and findings in a case of Budd Chiari synd. [June 15]

39. a) Enumerate the causes of obstructive jaundice in adults. b) Role of USG & MRI in the evaluation of obstructive jaundice. [2+(4+4) Dec 15]

40. a) Enumerate the various causes of nodules in a cirrhotic liver. b) Role of Imaging in differentiating them. [3+7 Dec 15]

41. Imaging features of: a) Carolidisease b) Biliary atresia [5+5 Dec 15].

42. Indications. imaging evaluation and technique of Transjugular lntrahepatic Portosystemic Shunt (TlPS). [2+4+4 Dec 15]

MUSCULOSKELETAL SYSTEM

1. Thoracic skeletal changes associated with cardio-vascular diseases. [JAN 97]

2. Radiological features in nutritional rickets.

3. Differential diagnosis of expanding lesions of mandible. [JAN 97, JAN 01]

4. Pyknodysostosis.

5. Radiological features of spinal tuberculosis. [JUL 97, JUL 98]

06. Radiological features of congenital syphilis.

07. Neurophatic joints.

08. Radiological features of Osteosarcoma. [98]

09. DD of generalized decrease in Bone Density. [98]

10.Differential diagnosis of expanding lesions in metaphysis of long bones. [JUL 98]

11. Cleido-cranial dysostosis.

12. Pancoast tumour. [JUL 98, DEC 02,03]

13. Hypertrophic pulmonary osteoartropathy. [JUL 98, JUL 99]

14. Enumerate the causes of Osteoporosis and use of CT in Bone Mineral Studies. [JUL 98]

15. Differential diagnosis of metaphyseal lucent lesions. [JUL 99]

16. Renal osteodystrophy.

17. Pathophysiology of renal rickets. [JAN 00]

18. Psoriatic arthritis.

19. Pathophysiology of Hyperparathyroidism. [02]

20. Radio-diagnosis of hyperparathyroidism. [JAN 00, DEC 03, JUN 04/09]

21. Radiology of Rheumatoid disease. [JAN 01]

22. Cystic jaw lesions . [DEC 02, DEC 03]

23. Perthe's disease. [02]

24. Expansile lytic lesion at upper end of Tibia. [02]

25. Hand: an index of the disease. [DEC 02, DEC 03]

26. Neurofibromatosis. OR Osseous spectrum in neurofibromatosis. [DEC 02/07/09, JUN 04]

27. Role of Skeletal Radiogrpahy in estimation of age. [02]

28. Bone age estimation [DEC 03]

29. Osteogenesis imperfecta .

30. Solitary dense vertebra. [02]

31. Imaging of Low Back pain. [02]

32. Role of MRI in bone tumors . [DEC 04]

33. Radiology of CARDIO-VASCULAR SYSTEM soft tissues . [DEC 05, JUN 06]

34. Secondary hyperparathyroidism. [JUN 05]

35. Osseous lymphoma.

36. Plain film features of Acromegaly. [02]

37. Techniques for evaluation of Acromegaly . [JUN 06]

38. Basilar invagination . [JUN 05/06]

39. Radiology of a Limping Child. [DEC 06]

40. Imaging features in Mucopolysaccharidosis. [DEC 06, JUN 07]

41. Periosteal Reactions (DD). [DEC 02, 06]

42. Imaging in Tuberous Sclerosis and its associations.

43. Sickle cell disease – radiological appearances. [JUN/DEC 07]

44. Discuss causes of diffuse skeletal sclerosis and role of imaging in it.

45. Sero-negative Spondyloarthropathy. [DEC 07]

46. Differential diagnosis of radiological appearance of absorption of terminal phalanges.

47. MR Imaging of Traumatic knee. [DEC 06]

48. Imaging in Meniscal tear of knee. [09]

49. Role of plain X rays and USG in Congenital Dislocation of Hip jt. [02]

50. MRI in congenital dislocation of hip joint. [09]]

51. MRI in SLAP lesions of shoulder. [09]

53. Rib Notching. [JUN 03]

54. Enumerate various causes of Para vertebral masses and their imaging features. [June 2008]

55. Mention causes of inferior RIB notching. Discuss imaging features of 2 common causes. [09]

56. Describe ossification of bones of elbow. [09]

57. Imaging and associations of Fibrous dysplasia. [09]

58. Briefly discuss imaging of pre-sacral masses in children. [09]

59. Ozone therapy for backache. [09]

60. Imaging findings in Plasma Cell Tumors. [09]

61. Evaluation of Skeletal Dysplasias in utero. [09]

62. Imaging in Rotator cuff lesions. [09]

63. What are round cell tumors of bone? Discuss in detail differentiating imaging features in these. [June 2008]

64. Describe radiological features, complications and differential diagnosis of Paget's disease. [June 2008]

65. Discuss the techniques, imaging features & limitations of sonographic evaluation of the rotator cuff [June 2008]

66. Describe different types and imaging features of fractures. What are the complications of fracture? [2010]

67. Define Stress fracture. Enumerate various sites and predisposing factors of stress fracture. Describe various imaging features of stress fractures. [Dec 2010]

68. Describe in brief various imaging features of Osteoid osteoma. Discuss its differential diagnosis. [Dec 2010]

69. Describe the life cycle of hydatid disease causative organisms. Enumerate sites of affection in human beings. Describe imaging features of Musculoskeletal hydatidosis. [Dec 2010]

70. Enumerate causes of Hypertrophic osteoarthropathy. Discuss its DD & describe its imaging findings on plain radiograph. [Jun 2011]

71. Discuss the radiographic and sonographic features of developmental dysplasia of Hip. [Jun 2011]

72. Describe the MR anatomy of the knee joint. Briefly state the MR sequences you would employ to delineate a suspected medial meniscus tear. [June 2011]

73. Enumerate different varieties of Osteosarcoma. Discuss their imaging features. [3+7 Dec 11]

74. Decribe etiopathogenesis of Osteomyelitis. Discuss role of imaging in acute osteomyelitis. [4+6 Dec 11]

75. Discuss the clinical associations of Hypertrophic Osteoarthropathy. Briefly describe its radiological findings, Differential diagnosis & role of Nuclear medicine. [3+4+2+1 Dec 11]

76. Classify scoliosis. Discuss imaging features of plain radiographic, CT and MRI in neurofibromatosis of spine. Discuss Cobb's angle and draw a diagram illustrating its measurement. [2+5+2+1 Jun 12]

77. Mention causes of periosteal new bone formation. Briefly discuss characteristic radiological features of osteomyelitis affecting infants, children & adults. [2+8 Jun 12]

78. Mention differential diagnosis of 15 year boy presenting with localized pain and swelling of 2 months duration in right lower thigh. Discuss conventional radiographic, CT and MRI features of the commonest primary malignant bone tumor in this age. [1+3+3+3 Jun 12]

79. Classify cysts of jaw. Describe briefly imaging features of each type of cyst. Draw suitable diagrams to describe various types. [2+6+2 Jun 12]

80. Discuss differential diagnosis and imaging features of painless expansile lesion involving single rib in an adult. [3+7 Jun 12]

81. List the causes of posterior scalloping of vertebrae. Describe skeletal changes seen in von Recklinghausen's disease. [2+8 Dec 12]

82. Enumerate various causes of hemolytic anemia. Describe the imaging findings in a case of Thalassemia major. Briefly discuss its DDs from sickle cell anaemia. [2+5+3 Dec 12]

83. Briefly discuss the pathophysiology of osteomalacia. Describe the radiological findings in renal osteodystrophy. Enumerate the findings that help in differentiating from primary hyperparathyroidism. [3+4+3 Dec 12]

84. What is Osteoporosis? Enumerate causes if osteoporosis. Discuss any 3 imaging modalities currently in vogue for assessment of bone mineral density. [2+2+6 Jun 13]

85. What are the key clinical features, common sites & radiological findings in Ewing's sarcoma? Discuss its differential diagnosis in brief. [2+2+4+2 Jun 13]

85. 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 Jun 13].

86. Enumerate causes of painful limp in a child unable to bear weight. Briefly discuss the role of plain X-ray, arthrography, US, CT, MRI and scintigraphy in arriving at diagnosis. [2+2+1+1+1+2+1 Jun 13]

87. Discuss the role of plain X-ray, CT and MRI in cases of lower cervical spinal trauma. [3+4+3 Jun 13]

88. Describe the MR anatomy of the shoulder joint. Briefly state the MR sequences you would employ to delineate various lesions of the shoulder joint. [4+6 Jun 13]

89. a. Ossification of elbow joint and its clinical significance. b. Fusion imaging. [5+5 Jun 13]

90. Enumerate any 5 morphological patterns of periosteal reaction and state their clinical significance. [2+2+2+2+2 Dec 13]

91. Discuss the pathophysiology of osteomalacia. Describe imaging features in primary hyperparathyroidism. [5+5 Dec 13]

92. Enumerate the hematopoietic disorders which causes marrow changes. Discuss the MRI findings of any two of these marrow disorders. [2+4+4 June 14]

93. Discuss the imaging features of avascular necrosis of the hip and its DD. [7+3 June 14]

94. What are the causes and imaging features of hypertrophic osteoarthropathy [3+7 June 14]

95. A 10-yr-old child has presented with swelling of the mandible. Enumerate the causes and discuss the imaging findings of any two. [2+2+6 June 14]

96. Enumerate the causes of hypertrophic osteoarthropathy. Briefly describe its radiological findings, DD and role of Nuclear medicine. [2+4+2+2]

97. Enumerate various causes of hemolytic anemia. Describe the imaging findings in a case of Thalassemia major. Briefly discuss its DDs from sickle cell anaemia. [2+5+3 Dec 14] (this question was repeated from Dec 12)

98. List the causes of posterior scalloping of vertebrae. Describe skeletal changes seen in von Recklinghausen's disease. [2+8 Dec 14] (repeat from Dec 12)

99. Enumerate causes of painful limp in a child unable to bear weight. Briefly discuss the role of plain X-ray, arthrography, US, CT, MRI and scintigraphy in arriving at diagnosis. [2+2+1+1+1+2+1 Dec 14](exact repeat from June 13)

100. Classify cysts of jaw. Describe briefly imaging features of each type of cyst. Draw suitable diagrams to describe various types. [2+6+2 Dec 14](exact repeat from June 12)

101.a. Ossification of elbow joint and its clinical significance. b. Fusion imaging. [5+5 Dec 14] (exact repeat from Jun 13)

102. a) Enumerate different varieties of osteosarcoma. b) Imaging features of various surface osteosarcomas. [5+5 June 15].

103. a) Pathophysiology of different types of hyperparathryoidism. b) Imaging features of primary HPT [5+5 June 15].

104. a) MRI anatomy of knee joint. b)Role of MRI in evaluation of meniscal injuries.

105. Various osseous changes in NF. [June 15]

106. Causes of paravertebral shadow in lumbar region and their differential diagnosis. [June 15]

107. a) Enumerate causes of periosteal new bone formation. b) Imaging features of acute osteomyelitis and infantile cortical hyperostosis. [3+(4+3) Dec 15]

108. Various radiological findings in Battered Baby Syndrome and their mimickers. [6+4 Dec 15]

109. Radiological findings in: a) Dermatomyositis. b) Lipoma arborescens. [5+5 Dec 15]

110. a) Role of skeletal radiography in determination of bone age in a male likely to be between 12-18 years of age. b) Factors affecting bone growth and remodeling. [6+4 Dec 15]

NEURORADIOLOGY

01. CT in Neurotuberculosis. [JAN 97]

02. Discuss the role of computed tomography in cerebrovascular accidents.

03. Arnold-Chiari malformations. [JUL 97, JUN 04]

04. Ring lesions on computed tomography of brain.

05. Neurosonography. [JUL 97, JUN 05]

06. Discuss the role of computed tomography in infective lesions of brain. [JUL 98]

07. Radiology and Imaging in Acoustic Neuroma. [98]

08. Radiological diagnosis of extra-dural spinal masses.

09. Enumerate the various neurocutaneous syndrome & describe imaging in any 2 of these. [JUL 99]

10. C.T. versus M.R.I. in brain tumours.

11. Imaging in congenital lesions of the spine and spinal cord. [JAN 00]

12. Radiology and Imaging of Meningiomas. [JAN 00, JUN 04]

13. Imaging in stroke.

14. Imaging in Acute stroke. [DEC 06]

15. CT and MRI in Intervertebral disc Prolaspse. [02]

16. Discuss the anatomy and anomalies of the Cranio-Vertebral region. How will you assess it Radiologically. [02]

17. White matter disorders OR CT and MRI in white matter diseases OR MRI in CNS white matter disease of Brain. [DEC 02, 03, JUN 04]

18. 4th Ventricular Ependymoma. [JUN 03]

19. Migrational anomaly. [JUN 04]

20. Role of DWI in brain . [DEC 04]

21. Sub Arachnoid space anatomy and SAH. [DEC 02, JUN 03]

22. Radiological investigation in SAH.

23. Intervention in SAH. [DEC 06]

24. Endovascular management of intra-cranial aneurysm. [DEC 05, JUN 06]

25. Imaging of cerebral ischaemic infarct. [JUN 05]

26. Posterior fossa neoplasms of childhood. [02]

27. Lateral ventricular masses. [05]

28. Radiology of brain tumors. [05]

29. Role of Imaging in Leukodystrophies. [DEC 06]

30. Carotico-Cavernous Fistula. [DEC 06]

31. Imaging and Intervention in Intracranial AVM. [JUN 07, DEC 09]

32. Imaging and intervention in spinal anterior-venous malformation.

33. MRI in Alzheimer's disease.

34. Radiological features in diffuse axonal injury. [DEC 07]

35. Central pontine myelinolysis.

36. Vein of Galen malformation.

37. Glutaric Aciduria Type I.

38. DD of ring enhancing lesions in brain in an immunocompromised patient. [DEC 09]

39. Intramedullary neoplasms of spinal cord. [09]

40. MRI in intramedullary neoplasms of spinal cord. [09]

41. Clinical applications of Diffusion Tensor imaging. [09]

42. CT and MR findings in acute stroke. [09]

43. CT versus MRI in stroke. [97]

44. Embolization in management of acute hemorrhage. [09]

45. Imaging in dementia. [09]

46. Role of imaging and intervention in Dural Arteriovenous Fistula. [09]

47. Neuro-imaging in AIDS. [DEC 02/06]

48. Radiological features in Neurological Complications of AIDS. [09]

49. Discuss CT and MR features of neurological complications of AIDS. [June 2008]

50. Functional imaging of Brain. [09]

51. Enumerate CP angle tumors and discuss their differentiating features on CT and MRI. [June 2008]

52. Describe MR anatomy of pituitary gland. Discuss in detail MR techniques and features to diagnose pituitary adenomas. [June 2008]

53. Define Spinal Dysraphism. Describe briefly the MR sequences you will use for diagnosis of spinal dysraphism. [2010]

54. Define Infective Discitis. Describe CT, MRI and Isotope imaging features of discitis. [2010]

55. Enumerate various causes of Supra-sellar masses. Describe imaging features in Craniopharyngioma. [2010]

56. Describe MR Imaging features in intra-cerebral Hematoma and techniques of Volume calculation in such a case. [2010]

57. Classify neural tube closure defects. Describe various Chiari malformation and their imaging features. [Dec 2010]

58. Classify brain tumors of children. Describe the imaging features of Primitive Neuroectodermal tumors. [Dec 2010]

59. Describe MR anatomy of Pituitary fossa with diagram. Describe the radiological diagnosis of Pituitary adenoma. [Dec 2010]

60. Describe the clinical features and MR imaging features of Multiple Sclerosis. [Dec 10]

61. Describe imaging features and intervention in vein of galen malformation. [June 11]

62. Describe the grading , imaging features and differential diagnosis of Glioblastoma multiforme. [June 11]

63. Describe the CT and MRI features of Neurocysticercosis of brain. How would you differentiate from other granulomatous lesions. [June 11]

64. Define acute cerebral stroke. What are its types. Discuss the role of CT and MR imaging in patients with acute stroke, enumerating the techniques that you shall employ and the characteristic findings you would expect. [June 11]

65. Discuss the role of CT in evaluation of patients with acute head injury, staging the types of injury, possible complications and their long term sequalae. [June 11]

66. Enumerate the clinical uses of MR spectroscopy in disorders and diseases of brain . Briefly discuss its role in evaluation of brain tumors. [June 11]

67. Enumerate the cause of SAH. Discuss the role of CT in its evaluation. [2+8 Dec 11]

68. Enumerate causes of demyelinating diseases of spinal cord. Discuss their imaging features and DDs. [2+5+3 Dec 11]

69. Discuss clinical presentation, imaging findings on USG, CT & MRI in Vein of Galen malformation. Briefly discuss its interventional management. [2+2+2+2+2 Dec 11]

70. Enumerate causes of normal intracranial calcifications. Discuss imaging features of pathological intracranial calcifications secondary to infections & infestations. [3+7 Jun 12]

71. Enumerate causes of spinal canal stenosis. Mention normal CT measurement of spinal canal at various levels. Describe plain radiograpnic, CT & MRI features of spinal canal stenosis. [2+2+2+2+2 Jun 12]

72. Enumerate various causes of suprasellar lesions in adults and children Describe plain radiographic, CT and MRI features of Craniopharyngioma. [4+6 Jun 12]

73. Enumerate the causes of cerebral venous thrombosis. Describe CT & MR findings of cerebral venous thrombosis. [2+4+4 Dec 12]

74. Enumerate the causes of enlarged jugular foramen. Describe the imaging findings and role of interventional radiology in management of Glomus Jugulare tumor. [2+5+3 Dec 12]

75. Enumerate the causes of ring enhancing lessons of brain parenchyma in MRI. Discuss the role of DWI and MR spectroscopy in differentiation of various lesions. [2+4+4 Dec 12]

76. Classify neural tube closure defects of brain. Briefly described types of Arnold Chiari malformation and discuss their imaging findings. [2+2+6 Jun 13]

77. Discuss the etiology and characteristic imaging findings in “ring enhancing lesions” of the brain. [3+7 Jun 13]

78. What are the common sellar and parasellar lesions?. Describe the key radiological findings in craniopharyngioma on skull radiographs, CT & MRI. [4+2+2+2 Jun 13]

79. A 38 year old man, who has been throwing epileptic seizures, is found to have ring lesions on MRI of brain. Discuss the differential diagnosis. Describe the specific MRI features of any 4 clinical entities which may present with these clinicoradiological findings. [2+2+2+2+2 Dec 13]

80. State the distinguishing features of intramedullar, extramedullary, intradural and extradural spinal lesions on MRI. Discuss briefly the DD's of intramedullary spinal lesions. [6+4 Dec 13]

81. How would you differentiate between an extra-axial and intra-axial mass lesion on cranial MRI? Describe the radiological findings in the most common extra-axial lesion found in middle aged patients. [4+6 Dec 13]

82. Discuss the types and classification of gliomas. Describe the imaging features of various types of gliomas. Discuss the role of perfusion imaging in gliomas. [3+5+2 Dec 13]

83. What is the basic difference b/w NF type I and II? Discuss the imaging findings in NF-II. Briefly describe extra skeletal manifestations and associations of Neurofibromatosis. [4+3+2+1 June 14]

84. Describe with a diagram the cerebral venous system. Briefly discuss the causes and imaging features of cortical venous thrombosis. [3+2+5 June 14]

85. A 40-yr-old female has presented with loss of vision and instability in gait. Discuss the DD and MRI findings in the most probable cause. What is the role of diffusion tensor imaging in this patient. [2+6+2 June 14]

86. Discuss the grading, imaging features on MRI and differential diagnosis of GBM. [3+5+2 Dec 14]

87. Classify neural tube closure defects of brain. Briefly described types of Arnold Chiari malformation and discuss their imaging findings. [2+2+6 Dec 14] (repeat from June 13)

88. Embolization in management of acute hemorrhage. [5 Dec 14](repeat from 09)

89. Causes of demyelinating lesions of spinal cord and their imaging features. [10 June 15]

90. a) Enumerate various neurocutaneous syndromes. b) Etiopathogenesis imaging features and associations of Sturge-Weber syndrome. [June 15]

91. Cystic lesions of posterior fossa and their differential diagnosis. [June 15]

92. a) Enumerate the causes of epilepsy. b) Distinguishing features of cortical lesions associated with epilepsy [5+5 Dec 15]

93. a) Classify spinal dysraphism. b) Pathology and imaging features of diastomatomyelia. [2+(3+5) Dec 15]

NUCLEAR MEDICINE

01. Radio nuclide imaging of the C.N.S. [JAN 97]

02. Radio isotope scanning in thyroid disease.[JUL 97, 02]

03. Isotope imaging of the Parathyroids. [02]

04. Radio nuclide imaging of urinary tract.

05. Isotopes in Myocardial ischaemia OR Scintigraphy in ischaemic Heart disease OR Role of nuclear medicine in ischaemic heart disease. [JUL 98, DEC 02/ 05]

06. 99m Tc labeled N – substituted Imino-diacetic acid (HIDA) Scan.

07. Role of scintigraphy in liver diseases. [JUL 99]

08. Radio-isotope scanning in cardiac lesions. [JAN 01]

09. Nuclear medicine in liver imaging [DEC 02]

10.Clinical application of radionuclide Renography. [02]

11. Renogram. [DEC 03]

12. Bone scan. [DEC 05]

13. GI Scintigraphy. [JUN 05]

14. Outline of radio-isotopes available. [JUN 06]

15. Radioistopes in Cardiac imaging. [09]

16. Radionuclide bone Scintigraphy in infective disorders. [09]

17. Application of DMSA Scintigraphy. [09]

18. Scintigraphy evaluation of Gastro-intestinal bleeding. [09]

19. Fusion imaging. [09]

20. PET [DEC 04, JUN 05]

21. Principles and role of PET in clinical radiology. [June 2008]

22. Describe Radiopharmaceuticals used in PET CT with their clinical applications. [09]

23. Radionuclide scanning in a bony lesion. [09]

24. Enumerate various radio-isotopes used in Hepato-Biliary system. Describe the imaging features and techniques in Biliary atresia. [Dec 2010]

25. Describe the role of scintigraphy in cardiac imaging with emphasis on myocardial perfusion and viability. [June 2011]

26. Enumerate the indications of scinitigraphic evaluation in GI bleed. Briefly discuss technique, radioisotopes used & interpretation of results. [2+4+2 Dec 11]

27. Enumerate indications and radio-isotopes used for radionuclide scanning of lungs. Briefly describe 3 techniques of isotope imaging of lung with their clinical implications. [(2+2)+(2+2+2) Jun 12]

28. List the indications of hepatobiliary scintigraphy in children and adults. Describe briefly the principle, technique & findings on scintigraphy in a car off neonatal jaundice. [2+2+2+4 Dec 12]

29. Briefly describe the stop pathogenesis of choledochal cyst. Enumerate various types of choledochal cyst. Discuss the role of imaging in Caroli's disease. [2+3+5 Dec 12]

30. a. Radio isotope scanning of the skeletal system. b. Clinical applications of 3D and 4D ultrasound. [5+5 Jun 13]

31. Discuss the role of scintigraphy in cardiac imaging with special emphasis on myocardial perfusion and viability. [10 Jun 13]

32. What is the principle of PET scanning? Briefly discuss the role of FDG-PET scanning and importance and clinical utility of two non-FDG molecules of PET scanning. [2+4+4 Dec 13]

33. a) Renal isotope scanning b) Tomosynthesis in mammography. [5+5 June 14]

OBSTETRICS AND GYNAECOLOGY

01. Imaging of Intra Uterine Foetal Death. [JAN 97]

02. Discuss the role of imaging in uterine lesions. [JUL 97]

03. Endometriosis. [JUL 98, DEC 04, JUN 07]

04. Ectopic Pregnancy. [JUL 99, DEC 05]

05. Alimentary tract lesions diagnosable in-utero

06. Role of Sonography in I.U.G.R.

07. Imaging of the placenta [JAN 00]

08. Write in detail US features of placental evaluation. [June 08]

09. Sonographic diagnosis of ectopic pregnancy. [JAN 01]

10. PCOD. [02]

11. Imaging in Infertility . [DEC 02, 03]

12. Endometrium in USG. [JUN 03]

13. Biophysical score . [DEC 03, JUN 04]

14. Uterine interventions . [DEC 05]

15. PNDT [DEC 05/06/07]

16. MRI in gynecologic imaging.

17. Cystic lesions of ovaries. [JUN 05]

18. Sonography of cystic ovarian masses. [09]

19. Doppler evaluation in IUGR . [JUN 05,06]

20. Radiological evaluation of delayed milestones. [JUN 06]

21. Role of USG in assessment of prenatal genitourinary tract. [DEC 06]

22. Antenatal detection of Vein of Galen malformation. [06]

23. Antenatal MRI. [JUN/DEC 07]

24. Sonography of cystic ovarian masses.

25. CT – Pelvimetry.

26. Enumerate markers of chromosome abnormality on antenatal ultrasound. Briefly discuss their sonographic features. [09]

27. Transvaginal scan in female infertility. [09]

28. USG in female Infertility [December 2008]

29. Uterine artery embolisation. [December 2008]

30. Describe the sonographic findings favouring the diagnosis of ectopic pregnancy and its DD. [2010]

31. Enumerate the vascular and structural abnormalities of the Umbilical cord. Describe the velocity waveform changes seen in the umbilical artery Doppler. [2010]

32. Enumerate the causes of infertility. What is the role of imaging in assisted reproduction. [Dec 2010]

33. Define fetal hydrops. Enumerate its causes. Describe sonographic and color doppler findings noted in this condition. [Dec 2010]

34. Discuss the sonographic techniques and criteria used in evaluation of uterine cervical incompetence. [Dec 2010]

35. Enumerate the common locations of ectopic pregnancy in order of frequency. Discuss the sonographic findings of ectopic pregnancy. [Dec 2010]

36. Describe the role of imaging in recurrence of ovarian malignancy after surgery. [Dec 2010]

37. Enumerate conditions under which the revised PNDT act 2010, permits you to conduct prenatal diagnostic techniques . What steps would you take in clinical USG practice to comply with the act. [June 2011]

38. Outline the diagnostic imaging approach in a pt. with Ovarian malignancy. Describe imaging features, staging & impact of cross sectional imaging in ovarian cancer. [June 2011]

39. Define abnormal endometrial thickening. Enumerate its causes & discuss their imaging features. [2+2+6 Dec 11]

40. List various causes of female infertility. Discuss the role of HSG & MRI in their evaluation. [2+4+4 Dec 11]

41. List various causes of bleeding in first trimester. Discuss their sonographic features. [2+8 Dec 11]

42. Enumerate various color doppler parameters used in IUGR. Briefly discuss their role in IUGR. Mention the significance of aortic isthmic index. [2+6+2 Dec 11]

43. Describe measurement technique & normal values of nuchal translucency. Briefly discuss its role in Trisomy 21 & other chromosomal anomalies. [4+2+2+2 Dec 11]

44. 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 Jun 12]

45. List various indications of MRI examinations in obstetrics. Outline various sequences used along with their rationale. Briefly describe MRI findings in two conditions presenting obstetric emergencies. [2+4+4 Dec 12]

46. List the causes of post menopausal bleeding. Briefly describe the role of various imaging modalities highlighting their advantages and pitfalls. Describe the MRI findings in a case carcinoma cervix. [2+4+4 Dec 12]

47. Enumerate various causes of female infertility. Describe the role of HSG & MRI in their diagnosis. [2+4+4 Dec 12]

48. Write short notes on: [5+5 Dec 12]

A. PC-PNDT Act

B. Conventional lead apron and zero lead apron.

49. 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 Jun 13]

50. Enumerate the factors the enhance the risk of ectopic pregnancy. What would be its classic clinical signs? Discuss the role of USG in its diagnosis highlighting the key imaging features. [2+2+6 Jun 13]

51. A 19 year old girl is referred with complaint of primary amenorrhea from the Department of Gynecology. As a radiologist, how would you evaluate her? Enlist the radiological investigations that might be beneficial to her, enumerating the precise entities you might identify with each. Describe the key radiological findings in any one clinical condition which may present as primary amenorrhea. [2+5+3 Dec 13]

52. A 26 year old patient, who is 12 weeks post-partum, is referred to you for radiological appraisal with a history of bleeding per vaginum & raised beta-HCG levels. What is the likely diagnosis?. How would you evaluate this patient?. Discuss the possibilities with their key radiological findings. [1+3+6 Dec 13]

53. How would you decide on the amnionicity & chorionicity in twin pregnancies? Enumerate the various complications that may occur in a twin pregnancy. Describe the various radiological findings in twin-twin transfusion syndrome. [4+2+4 Dec 13]

54. Define IUGR. Enumerate its causes. Discuss the role of imaging in management of IUGR. [1+2+7 June 14]

55. Enumerate and classify various congenital anomalies of the uterus. Discuss the role of US and MRI in their diagnosis, highlighting their advantages and limitations. [3+7 June 14]

56. Enumerate various MRI sequences used for evaluation of the uterus, highlighting their specific role. Describe the role of MRI in suspected carcinoma cervix along with their MR findings. [4+6 June 14]

57. Define habitual abortion. Enumerate various causes of habitual abortion. Discuss the role of imaging in diagnosis and follow up of these cases. [1+2+5+2 June 14]

58. Enumerate causes of first trimester bleeding. Discuss the imaging features to diagnose and follow-up such patients. [3+7 Dec 14]

59. a) Placenta accreta - Pathophysiology and imaging findings [5 Dec 14]

60. Indications, technique and complications of uterine artery embolization. [June 15]

61. Ultrasound in a 35 yr old female shows a right adnexal cystic mass. a) What are the likely causes? b) Algorithmic approach and imaging features in these causes. [2+8 June 15]

62. 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 June 15]

63. a) Documentary requirements under PC-PNDT Act. b) Positioning and technique for Water's view. [5+5 Dec 15]

64. a) Enumerate the congenital anomalies affecting the uterus. b) MR lmaging findings in these. [3+7 Dec 15]

PANCREAS

1. Endocrine tumours of the pancreas. [JUL 98]

2. Pancreatic pathology. [DEC 02]

3. Classification and Imaging of Neuroendocrine tumors of pancreas. [DEC 04/09]

4. Grading of Pancreatitis and its relevance. [02]

5. CT in Pancreatitis . [JUN 04]

6. Acute Pancreatitis . [JUN 05]

7. Pancreatic Endosonography.

8. Image guided interventions in pancreatic disease. [09]

9. Radiological features in cystic tumors of pancreas. [09]

10. Classify pancreatic neoplasms. Describe imaging features in a case of carcinoma head of pancreas. [Dec 2010]

11. Discuss the role of CT in evaluation of pt. with acute pancreatitis, outlining the technique, CT signs, assessment of disease severity and its relationship to outcome of patient. [Jun 2011]

12. What is Pancreatic divisum?. Briefly discuss its embryologic basis & clinical significance. What are ERCP, MRCP & MDCT findings. [2+3+5 Dec 11]

13. Enumerate various pancreatic masses of childhood. Discuss their imaging features & DDs of pancreatoblastoma. [2+5+3 Dec 11]

14. 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 and CT scan) of annular pancreas. [4+3+3 Jun 12]

15. Enumerate various indications of upper gastrointestinal endoscopic sonography. Briefly discuss it's role in evaluation of pancreatic pathologies outlining the advantages and disadvantages. [2+8 Dec 12]

16. Discuss the technique and role of CT in the evaluation of acute pancreatitis [2+8 Jun 13]

17. A 40 year old female with pain abdomen is found to have a cyst in the body of pancreas on USG. Enumerate various possible causes. Discuss the imaging algorithm you would follow for arriving at diagnosis in this case. [2+8 June 14]

18. b)Anomalus pancreatico-biliary ductal junction and its complications [5 Dec 14]

19. b) Intra-ductal papillary tumors of pancreas. [5 Dec 14]

20. Enumerate various complications of acute and chronic pancreatitis. Describe briefly the imaging features and role of interventional radiology in these conditions. [2+4+4 Dec 14]

21. b) Biliary atresia [5 Dec 14]

22. a) Enumerate various neuroendocrine tumors of pancreas. b) Characteristic features of these on various imaging modalities including the role of radio-nucleide imaging. [5+5 June 15]

23. a) Imaging and interventions in vascular complications of pancreatitis. b) Imaging features of multicystic dysplastic kidney. [5+5 June 15]

24. a) Enumerate neuroendocrine tumors of pancreas. b) Their CT and MRI imaging features. [2+(5+3) Dec 15]

PHYSICS

01. Technical parameters of an x-ray equipment for fluoroscopic procedures.

02. Basic construction of an x-ray tube and recent advances.

03. Principle of doppler ultrasound and its application in neck ultrasound.

04. Factors affecting quality of a radiograph. [JUL 97, JAN 01, DEC 04]

05. Name the various interactions of X-ray photons with matter. Describe any two.

06. Focal spot in a diagnostic x-ray tube. [JUL 99, DEC 02]

07. Ultrasound image artifacts.

08. Image Intensifier. [JAN 00, DEC 02, 03]

09. Discuss the Biological effects of Radiations and the measures taken against its protection for Radiation workers and patients in Radio-diagnosis dept. [JAN 01, DEC 05, JUN 06]

10. Define principles of radiation protection. Describe various parameters which can reduce patient radiation dose in radiography and fluoroscopy. [09]

11. Measures to decrease radiation dose to patient. [02]

12. AERB guidelines for Radiation safety. [DEC 06]

13. Ionizing radiation in bone.

14. Intensifying screens. [DEC 02/04; JUN 06]

15. Portable radiography [DEC 03]

16. Principles of colour doppler sonography. [02]

17. MDCT technology. [DEC 02/03/04]

18. X-Ray film and Types of films used in Radiology. [DEC 02, 03, 04]

19. Construction of a conventional X-ray film & functions of each layer. [02]

20. Composition of X-ray films Discuss about different parameters which influence film contrast. [09]

21. Properties of X-rays. [02]

22. Medical X ray films processing chemicals. [02]

23. High generator transformer. [DEC 04]

24. Radiation monitoring devices.

25. Radiation scatter. [DEC 05, JUN 04]

26. Define scatter radiation. Discuss briefly the parameters which influence scatter radiation and methods to reduce scatter radiation.

27. Rare earth screens.

28. New MR pulse sequences

29. X-ray beam restrictors. [DEC 06, 09]

30. Motion and pulsation artifacts in MRI

31. Adverse effects of radiation .

32. Cine fluoroscopy

33. Grids [DEC 05/07]

34. Cardiac CT. [JUN 05]

35. Radiation dose reductions in CT .

36. Darkroom illumination.

37. Modern rotatory x-ray tube .

38. PACS – picture archival and communication system.

39. TLD – Thermo Luminescence Dosimeter .

40. Filters and filtrations .

41. MR coils.

42. Design and setup of a radiology department OR Setting up a radiology department in a 200 bedded hospital [JUN 05/06]

43. Film artifacts. [02/05]

44. Electrical circuits of x-ray machine .

45. Safety hazards in MRI.

46. Steps to improve the quality of a chest X-ray .

47. Radiological management of Bomb-Blast injury.

48. Maximum permissible radiation dose.

49. Define principles of radiation protection. Describe various parameters which can reduce patient radiation dose in radiography and fluoroscopy. [June 2008]

50. Photoelectric effect andf its application in diagnostic radiology. [09]

51. Film contrast. [09]

52. Dosimeters used for radiation monitoring. [09]

53. Radiation dose in various examinations using MDCT. [09]

54. Computed radiography cassette. [09]

55. PACS in radiology. [09]

56. Genetic Screening. [09]

57. Planning considerations for installation of 500 mA X—ray machine. [09]

58. Composition of X-Ray films. Discuss about different parameters which influence film contrast. [June 2008]

59. Define basic units of radiation exposure. List recommended dose limits for radiation worker & general public. [09]

60. Define the basic units of radiation exposure. Describe biological effects of radiation. [08]

61. Discuss about mammography X-ray unit. [June 2008]

62. Legal responsibilities and duties of radiologist in clinical practice. [09]

63. Doppler artifacts and pitfalls. [08]

64. Define quality assurance. Discuss the organization of a quality assurance program pertaining to radiology equipment. [08]

65. Principles and clinical applications of dual energy CT. [08/2010]

66. Enumerate, various interactions of X-ray photons with matter. Describe any 2 in brief [2010]

67. Rare earth screens. [2010]

68. Define scatter radiations. Comment briefly on the parameters which influence scatter radiation and methods to reduce scatter radiation. [2008/2010]

69. Define Roentgen. Mention various recommendations on maximum permissible dose for patients and staff members in Radiology department. [2010]

70. Describe the basis of BOLD imaging. Write its utility and limitations. [2010]

71. Write in brief the principle and types of Digital radiography. Outline its advantages and disadvantages. [2008/2010]

72. Define and classify radiographic Grids. Describe their various uses in radiography. [Dec 2010]

73. Define radiographic contrast. Describe various factors that affect radiographic contrast. [Dec 2010]

74. Describe AERB guidelines on X-ray room installation. [Dec 2010]

75. Describe the various techniques you will employ to reduce patient and operator radiation dose in CT angiography. [Dec 2010]

76. Enumerate basic properties of X rays. Describe factors affecting scatter radiation and techniques to minimise scatter radiation. [June 11]

77. Brief outline the evolution of present day CT scanners citing the key specific changes through different generations. [June 11]

78. While conducting a conventional diagnostic radiographic procedure under fluoroscopic guidance , what steps would you take to reduce radiation dose to pt. what measures would you take to safeguard yourself. [Jun 11]

79. Discuss briefly the principle of MR spectroscopy. Enumerate its clinical significance in any three clinical settings , outlining explicitly how it would be useful. [June 11]

80. Discuss various dose reduction techniques in MDCT. Mention the average radiation doses received for common examination using MDCT. [Jun 11]

81. Define Doppler effect. Briefly describe color doppler and power doppler modes of imaging. Enumerate advantages of each mode. [1+4+5 Dec 11]

82. Describe major components of a PACS system and their functions in brief. [10 Dec 11]

83. Define film contrast. Enumerate various factors affecting film contrast. Briefly discuss methods to improve it. [2+4+4 Dec 11]

84. Describe in brief components and their function of a rotating X-ray tube. Draw its neat diagram and label its components. [5+5 Dec 11]

85. Discuss various statutory requirements to be followed for installation of following radiological equipments: [4+3+3 Jun 12]

A. 1000 mA x-ray machine

B. CT scan

C. DSA Lab

86. Describe various measures to reduce radiation exposure to patients as well as personnel performing fluoroscopically guided vascular interventional procedures in DSA Lab. [10 Jun 12]

87. Write short notes on: [3+3+4 Jun 12]

A. Heel effect

B. Genetic effect of radiation

C. Conventional lead apron & zero lead apron

88. Write short notes on the following: [4+3+3 Jun 12]

a) Factors affecting scatter radiation and different techniques to minimize them. b) Radiographic contrast c) Properties of x-rays.

89. Write short notes on : [3+3+4 Dec 12]

A. Photoelectric effect and its role in production of radiographic image.

B. TLD

C. Mammographic X-ray tube.

90. 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 Dec 12]

91. a. Rare earth screens. b. Green sensitive film. c. Dual energy substractions. [3+3+4 Jun 13]

92. Define Roentgen. Mention various recommendations of maximum permissible dose for patients and staff members of the Radiology department. [2+4+4 June 13]

93. Enumerate various interactions of X-ray photons with matter. Discuss any two in details with their significance in radiology department. [3+3+4 June 13]

94. Describe AERB guidelines for X-ray a CT installation. [5+5 June 13]

95. a) AERB guidelines for installation of X-ray equiptment. b)Thermoluminiscent dosimeter [5+5 Dec 13]

96. a) Quality of radiologic images b) Different types of x-ray tubes. [5+5 Dec 13]

97. Describe in detail various requirements of quality control programme in radiology department. [10 Dec 13]

98. Enumerate the different types of X-ray tubes. What is the difference between a conventional X-ray tube and a mammography tube? Briefly describe mammography tube with the help of a neat labeled diagram. [2+4+4 June 14]

99. What are the cardinal principles of radiation protection? What methods would you use to decrease exposure in fluoroscopy? [6+4 June 14]

100. a)Personal Dosimeters b) Tissue Harmonic imaging. [5+5 June 14]

101. a) MR contrast for liver imaging b) Contrast induced nephropathy and methods to prevent it. [5+5 June 14]

102. Advances in CT technology to decrease the radiation dose in children. What is CT dose index (CTDI). [8+2 June 14 and Dec 14]

103.Write in brief the principle and types of Digital radiography. Outline its advantages and disadvantages. [2+4+4 Dec 14] (repeat from 2008 and 2010)

104. a) AERB guidelines for installation of X-ray equipment. b) Thermoluminiscent dosimeter [5+5 Dec 14] (repeat from Dec 13)

105.Enumerate various interactions of X-ray photons with matter. Discuss any two in details with their significance in radiology department. [3+3+4 Dec 14] (repeat from June 13)

106. Advances in technology to reduce radiation to a patient during radiography. [June 15]

107. Clinical applications and techniques of fat suppression in MRI.

108. Principles of perfusion CT and quantification of tumor perfusion parameters. [June 15]

109. a) What is scatter radiation? How does it affect radiographic image quality? b) Methods to reduce scatter radiation. [(1+2)+7 Dec 15]

110. Enumerate the types of digital radiography. Describe each one briefly.
b) Advantages and limitations of digital radiography compared with conventional film screen radiography. [4+6 Dec 15]

111. a) Techniques for dose reduction in MDCT. b) How is mammography tube different from conventional X ray tube? [5+5 Dec 15]

RADIOGRAPHIC POSITIONING
1. Describe the positioning for various skull x-ray views.

2. Conventional skull radiography.

3. Radiography of the Jugular Foramen. [DEC 06]

4. Base of Skull.

SKULL AND ORBIT
1. Investigation in a case of exophthalmos. [JAN 00]

2. Imaging of posterior fossa. [JAN 01]

3. Orbit. [DEC 02]

4. Orbital tumours . [DEC 03, JUN 04]

5. USG in retinal retinal & choroidal detachment. [02]

6. Orbital pathologies. [JUN 04]

7. Imaging in unilateral exophthalmos. [DEC 07]

8. Ocular blood flow in normal and Glaucomatous eye on color Doppler imaging.

9. Enumerate causes of orbital masses. Discuss imaging features of two common causes in an adult. [09]

10. Classify orbital lesions in relation to various orbital spaces. Discuss MR features in orbital pseudo tumors. [June 08]

11. Enumerate causes of unilateral proptosis. describe imaging findings of optic glioma and caroticocavernous fistula. [June 11]

12. Describe in brief anatomy of sella turcica. Enumerate various sellar and parasellar masses. Discuss imaging features of craniopharyngioma. [3+2+5 Dec 11]

13. Enumerate various indications of orbital ultrasound. Discuss the role of ultrasound & color Doppler in a case of white reflex in a child. [2+4+4 Dec 12]

14. Enumerate the cause of solitary lytic lesion in the skull. Describe the distinguishing radiological features of any three. [4+6 Jun 13]

15. Enumerate the causes of pulsatile exophthalmos. Discuss the imaging features of any two conditions. [2+4+4 June 14]

16. Enumerate causes of unilateral proptosis. Describe briefly imaging findings of optic glioma and caroticocavernous fistula. [2+4+4 Dec 14]

17. a) How do you classify orbital masses? b) Enumerate various causes of Orbital masses c) MR features of orbital pseudotumors. [June 15]

18. a) Enumerate various indications of orbital ultrasound. b) Role of ultrasound and Colour Doppler in a child with white reflex. [2+(4+4) Dec 15]

TECHNIQUES, NEWER MODALITIES AND RECENT ADVANCES

01. Spiral CT and its major applications. [JAN 97]

02. Ultrasound transducers and their applications.

03. Developments in ultrasound transducer technology. [09]

04. Xeroradiography.

05. High resolution CT and its major applications. [97, 05]

06. MR Spectroscopy. [JUL 97, DEC 02/05/06]

07. Automatic processing and Automatic Film Processor (AFP). [JUL 97, JAN 00, DEC 02/05]

08. 3D CT angiography. [JUL 98]

09. Digital radiography. [DEC 05/06, JUN 05]

10. Flat panel digital radiography.

11. What is digital radiography? Discuss its advantages and disadvantages. [09]

12. Computed radiography and digital radiography. [DEC 05, JUN 06]

13. ERCP. [02]

14. MRCP. [JUL 99, DEC 03]

15. MRCP vs ERCP

16. Small bowel enema.

17. Tissue Harmonic imaging. [JAN 01, DEC 04]

18. MRI Urography. [DEC 02]

19. MR Venography.

20. MR angiography. [JUL 97, DEC 02/04, JUN 06]

21. MRA in lower limb arteries

22. Discuss the role of C.T. angiography, its indications, advantages and limitations. [JAN 01]

23. CT angiography and its application in abdomen. [DEC 05, JUN 06]

24. Principles of CT angiography.

25. CT angiography – present status [JUN 06]

26. Methods of contrast administration for CT angiography. [09]

27. CT angiography vs MR angiography.

28. Virtual endoscopy.

29. Virtual Colonoscopy. [DEC 05/07, JUN 05]

30. Virtual bronchoscopy . [DEC 05, JUN 06, DEC 09]

31. CT Coronary angiography.

32. Intra-operative USG. [DEC 04]

33. TRUS.

34. Trans-rectal and Trans-Perineal USG in elderly patients. [06]

35. Sonohysterography.

36. Discuss principle, various techniques of elastography and their clinical applications. [June 08/2010]

37. Peripheral venous doppler.

38. DSA.

39. Intravascular Ultrasound. [06]

40. Full field Digital Mammography. [06]

41. Radiofrequency Ablation [clinical application and principle]. [03, 06]

42. Percutaneous vertebroplasty. [06]

43. Outline of techniques in functional MRI. [JUN 06]

44. Diffusion weighted MRI. [08]

45. Dry view laser camera. [06]

46. Clinical applications of 3T MRI. [06]

47. Discuss the procedure for Barium Enema.

48. Technique of Double Constrast Barium Enema. [02] Enumerate the DD and imaging features of Hepatic flexure mass. [2010]

49. MR enteroclysis – techniques, indications and applications. [02, 2010]

50. MRI in Cardiac Imaging OR MR sequences in Cardiac Imaging. [JUN/DEC 07]

51. Vertebroplasty in non-infective vertebral collapse.

52. Tomosynthesis and its clinical applications. [09]

53. Volume ultrasound. [09]

54. Discuss indications, technique and complication of bronchial artery embolisation. [June 2008, 10]

55. PACS. [DEC 06]

56. Describe the principle and types of bone densitometry. Outline the advantages, disadvantages and limitations of each type. [2010]

57. Enumerate the various gradient echo sequences. Describe in brief the principle and their clinical applications. [2010]

58. Describe techniques of MRCP. What are the advantages and disadvantages of MRCP vs ERCP. [2010]

59. Techniques and applications of CT colonography. [2010]

60. Write in brief the principles of Radio frequency ablation [RFA]. Enlist its indications, contraindications and complications in management of Hepatocellular carcinoma. [2010]

61. What are the advantages of 3T MRI over 1.5T MRI ? Comment on its limitations. [2010]

62. What is the principle of diffusion weighted imaging and its role in evaluation of breast masses. [2010]

63. Enumerate the indications of foetal MRI. Comment on its limitations. [2010]

64. Write in brief about problem of storage requirements in PACS. Describe its solutions. [2010]

65. Describe briefly indications, technique, complications and post procedure follow up of Transjugular Intrahepatic Portosystemic Shunt. [Dec 10]

66. Describe the technique of CT enteroclysis. Enumerate its indications, advantages and limitations. [Dec 10]

67. Describe the technique of CT coronary angiography. Draw a labeled diagram of normal coronary arteries. Mention the major anatomical variants. [Dec 10]

68. What is molecular imaging and describe its role in musculoskeletal system. [Dec 10]

69. Describe the technique of MR Arthrography. Enumerate its indications, advantages and limitation. [Dec 10]

70. What do you understand by perfusion imaging?. Describe briefly CT and MR perfusion imaging techniques. [Dec 10]

71. Enumerate various endoscopic ultrasound imaging techniques. Describe common endoscopic ultrasound imaging features in esophageal disease. [Dec 10]

72. Write in brief about the technique, indications, contraindications and complications of Radiofrequency ablation in hepatic and biliary lesions. [Dec 10]

73. What do you understand by tissue harmonic imaging. How is it useful during sonographic evaluation of small parts of body? [3+7 June 11]

74. Define High Intensity Focused Ultrasound. Describe its clinical applications. [2+8 June 11]

75. Describe principle of Dual energy CT, different techniques of dual energy acquisition and various applications. [3+2+5 Dec 11]

76. Discuss the principle, components, advantages and limitations of Digital Radiography. [1+4+3+2 Dec 11]

77. Describe principle of ultrasound elastography and its clinical applications. Briefly discuss its usefulness in evaluation of BIRAD 3 lesions. [(4+3)+3 Jun 12]

78. Describe the physical principles of PET-CT. Discuss the role of computed tomography and PET-CT in diagnosis post-treatment evaluation of lymphoma. [2+4+4 Dec 12]

79. Describe the physical principles of CR and DR. Briefly discuss their advantages and disadvantages. [3+3+2+2 Dec 12]

80. Briefly describe the physical principle of radio frequency ablation. Enumerate it's applications. Discuss the role of radio frequency ablation in management of osteoid osteoma. [2+2+6 Dec 12]

81. Write short notes on: [5+5 Dec 12]

A. Focussed abdominal sonography for trauma. B. Pressure injector

82. Define strain and shear wave elastography. Discuss its role in breast, prostatic and musculoskeletal lesion. Compare its sensitivity and specificity with MR elastography. [2+6+2 Jun 13]

83. a) CT vs MR Urography. b) CT vs MR Enteroclysis [5+5 Jun 13]

84. 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 Jun 13]

85. a. Principle of Digital radiography. b. Clinical applications of molecular imaging. [5+5 Jun 13]

86. a. MR artefacts b. CT artefacts. [5+5 Jun 13]

87. Discuss the following: a. BOLD Imaging b. Genetic Screening c. PACS in Radiology. [3+3+4 Jun 13]

88. Write short notes on: 1) MR tractography 2) Dual energy scanning in musculo-skeletal system. (5+5 Dec 13)

89. Write short notes on: 1) CO2 angiography 2) Transcranial sonography in stroke (5+5 Dec 13)

90. Write short notes on: a) Flat panel detector b) HIFU-Clinical indications & utility. [5+5 Dec 13]

91. Write short notes on: a) Mobile CT scanner b) Renal denervation for renovascular hypertension. [5+5 Dec 13]

92. a) MR-PET b) Dose reduction techniques in MDCT. [5+5 Dec 13]

93. a) Imaging of hemobilia and interventions b) Principles & applications of RF ablation. [5+5 June 14]

94. a) CT perfusion in acute stroke b) Principles of functional MRI. [5+5 June 14]

95. Techniques of ultrasound elastography and its applications. [5+5 June 14]

96. Advantages and disadvantages of computed radiography and direct digital radiography. [10 June 14]

97. What are the advantages of 3T MRI over 1.5T MRI ? Comment on its limitations. [6+4 Dec 14] (exact repeat from 2010)

98. a. MR artefacts b. CT artefacts. [5+5 Dec 14] (exact repeat from Jun 13)

99. Enumerate the various gradient echo sequences. Describe in brief the principles and their clinical applications. [3+3+4 Dec 14] (repeat from 2010)

100. Define High Intensity Focused Ultrasound . Describe its clinical applications. [2+8 Dec 14] (repeat from June 11)

101. What do you understand by tissue harmonic imaging . How is it useful during sonographic evaluation of small parts of body. [3+7 Dec 14] (repeat from June 11)

102. a) Fusion imaging. b) ELORA [5+5 June 15]

103. Advances in ultrasound transducer technology. [June 15]

104. Advances in MR gradient technology and its advantages. [June 15]

105. a) Zero lead aprons. b) Spatial compound imaging [5+5 June 15]

106. a) Principles and techniques of dual energy CT. b) Clinical applications of dual energy CT. [(3+3)+4 Dec 15]

107. Principles and techniques of ultrasound elastography along with its clinical applications. [2+4+4 Dec 15] (repeat from June 14)

108. 6. a) HlFU - Principles and clinical uses. b) PET-CT in staging of brain tumours. [(3+3+)+4 Dec 15]

109. a) Advances in lead apron technology. b) Technique of MR perfusion and its clinical applications in brain lesions. [4+(3+3) Dec 15]

THYROID

1. Role of USG in thyroid diseases. [JAN 97]

2. Imaging in thyroid pathology. [JAN 00]

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CNS

MAJOR QUESTIONS

1. Classify paediatric brain tumors and describe their imaging features in detail.

2. Classify and enumerate different supratentorial tumours in adults. Describe in detail the imaging features of Glial tumours.

3. Enumerate posterior fossa tumours occurring in children and in adults. Discuss in detail the imaging features of infratentorial tumours in paediatric age group.

4. What are the causes of subarachnoid hemorrhage. Discuss the imaging and management in a case of subarachnoid hemorrhage.

5. Describe the imaging anatomy of craniovertebral junction. Describe the role of imaging in craniovertebral junction pathologies.

6. Describe the anatomy of sella and para sellar regions. Enumerate different tumors in this region and describe in detail imaging features of craniopharyngioma and its differential diagnosis?

7. What is Phakomatosis? Enumerate the various conditions in this group and describe the imaging features of Neurofibromatosis.

8. Describe in detail imaging in cranio -cerebral trauma.

9. Describe the vascular territories of brain on cross sectional imaging. Discuss the role of imaging in ischemic stroke?

10. Describe the development of embryological development of spinal cord. Classify
Congenital anomalies of spine and discuss in detail occult spinal dysraphism?

11. Classify spinal tumours. How will you localize an intra spinal mass on imaging.
Discuss differential diagnosis and imaging features of extradural spinal tumour.

12. Classify various orbital mass lesions. Describe the imaging features of orbital mass
Lesions.

13. Enumerate the causes of non traumatic intra axial hemorrhage. Describe in detail
their CT & MRI imaging features?

14. Discuss the imaging features and diagnosis of inherited white matter diseases
(Leukodystrophies).

15. Enumerate the causes of acute paraplegia. Discuss the imaging of infections involving the spine.

16. Discuss differential diagnosis of various space occupying lesions of the CP Angle.

17. Describe the differential diagnosis in a patient presenting with unilateral proptosis.

18. Enumerate intraventricular masses in children and discuss their imaging features.

19. Enumerate and discuss the imaging features of intraventricular masses in adults

20. Discuss in detail the imaging of various intracranial vascular malformations.

21. Enumerate and discuss posterior fossa malformations.

22. Classify and describe various intracranial aneurysms.

23. Enumerate major apertures of skull base and discuss their location, transmitted
Structures through them and their connects. Describe the imaging features of various anterior skull base lesions.

24. How will you differentiate intraaxial from extraaxial mass on imaging. Discuss the various extraaxial tumours in adults.

26. Discuss the role of imaging in temporal bone pathologies.

27. Describethe role of imaging in seizures in paediatric age group.

28. Discuss imaging anatomy of the sinonasal region. Describe the role of imaging in

planning endoscopic sinus surgery. Discuss the imaging of fungal sinusitis.

29. Give a schematic overview of the anatomy of visual pathway and the field defects caused by lesions in varios locations along the pathway. Discuss the various causes of visual loss resulting from lesions along the visual pathway.

30. Describe in detail the role of imaging in degenerative disease of the spine. Briefly discuss imaging in post operative spine.

31. Discuss the role of Neurosonography in neonates.

32. Discuss the role of a radiologist in management of carotid and vertebral artery disease.

33. Describe the imaging anatomy of the middle ear with its relations. Elaborate in detail the imaging of tinnitus using various imaging modalities.

34. Discuss the role of imaging in thyroid gland disorders.

35. Describe the role of imaging in pineal region tumours.

36. Discuss the imaging approach to various causes of ring enhancing lesions of the brain.

37. Discuss the role of imaging in infections and infestations of the adult brain.

38. Neuroimaging in AIDS

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CNS

SHORT NOTES

1. Neurotuberculosis
2. Neurocysticercosis
3. Intramedullary tumours of spinal cord
4. Venous drainage of brain
5. Multiple sclerosis
6. Sturge weber syndrome
7. Tuberous sclerosis
8. Intradural exramedullary spinal tumours
9. Craniosynostosis
10. Raised intracranial tension
11. Corpus callosum agenesis
12. Holoprosencepaly
13. Schizencephaly
14. When is CT more appropriate than MRI in neuro imaging
15. Grey Scale ultrasound imaging of posterior segment of eye
16. Cerebral herniations
17. Venous Infarct
18. Cerebral edema
19. Post meningitis sequelae
20. Vertebral hemangioma
21. Chordoma
22. Optic nerve meningioma
23. Thyroid ophthalmopathy
24. Hypoxic ischemic encephalopathy
25. Herpes encephalitis
26. CNS infections in newborn
27. Atherosclerotic plaque assessment
28. Mucocele of Paranasal sinus
29. Juvenile angiofibroma
30. Carotid and vertebral artery dissection
31. MRI findings in intracerebral hemorrhage
32. Diastometamyelia
33. Adrenoleukodystrophy (AL)
34. Metachromatic leukodystrophy
35. MR features in Parkinsonism
36. Normal pressure hydrocephalus
37. ADEM
38. Pulsatile tinnitus
39. Infundibular masses
40. Vein of galen malformation

41. Cavernous angioma
42. Migration anomalies of the brain.
43. Arnold chairi malformation
44. Retinoblastoma
45. Transcranial Doppler
46. Moya Moya disease
47. Mesial temporal sclerosis
48. MR imaging in spinal trauma
49. MR venography of brain
50. Lissencephaly
51. Septo-Optic dysplasia
52. Unilateral Megalencephaly
53. Non accidental cranio cerebral trauma in children
54. Orbital pseudotumour
55. Arachnoid cyst
56. Epidermoid
57. Dandy walker malformation
58. Cystic malformation of posterior fossa
59. Imaging in otitis media
60. Neurofibromatosis type II
61. Osmotic demyelination
62. Hypertensive encephalopathy
63. CNS sarcoidosis
64. Atypical meningioma
65. Craniopharyngioma
66. Medulloblastoma
67. DNET (Dysembroyoplastic Neuro epithelial tumour)
68. Oligodendroglioma
69. Gliomatosis Cerebri
70. Pituitary microadenoma
71. Imaging subarachnoid haemorrhage
72. Lacunar infarcts
73. Spinal vascular malformations
74. Herpes simplex encephalitis
75. Cerebritis and cerebral abscess
76. CNS fungal infection
77. Toxoplasmosis
78. Carotico cavernous fistula
79. Leukocoria
80. Sacro coccygeal teratoma
81. CNS Lymphoma
82. Cerebral metastases
83. Esthesioneuroblastoma
84. Acoustic neuroma

85. Pituitary macroadenoma
86. Caudal regression syndrome
87. Lumbar spinal stenosis
88. Basal ganglia hyperintensity
89. MR Diffusion and perfusion imaging in cerebral ischemia
90. Differential diagnosis of T2W hyperintensity in the Pons.
91. Cholesteatoma
92. Neurofibromatosis I.
93. Radio-isotops in thyroid disorders.
94. Whiplash injury.
95. Intraocular tumours.
96. Basilar invagination and basilar impression.
97. Solitary thyroid nodule.

BONES

Major questions

1. Describe the calcium metabolism and discuss radiological changes in hyperparathyroidism.

2. Discuss etiopathogenesis and imaging appearances in Avascular necrosis of femoral head.

3. Classify bone tumours. Discuss the radiological approach in diagnosing bone tumours. Discuss in detail various types of osteosarcomas.

4. What are the causes of hip pain in early childhood? Discuss the imaging findings in congenital dislocation of hip/Developmental dysplasia of hip.

5. Discuss the role of Radionuclide scan in evaluation of a skeletal lesion

6. What are the seronegative arthropathies? Discuss in detail their Radiological features.

7. Discuss the imaging features of skeletal tuberculosis

8. What are the causes of soft tissue ossification and calcification. Describe the radiological features of the various causes

9. What are the various crystal deposition diseases. Discuss their imaging features.

10. Discuss the differential diagnosis of a expanding lesion at the end of a long bone.

11. Role of MRI in evaluation of ligamental and meniscal injury of the knee.

12. Discuss Vitamin D metabolism – Describe role of imaging in Vit D deficiency disorders.

13. Discuss various bone tumours of the vertebral column.

14. What are the different types of periosteal reactions? Discuss the imaging features of osteomyelitis.

15. Discuss the role of imaging in the pathologies of the shoulder joint.

16. Discuss the role of imaging in evaluation of chondrogenic bone tumours.

17. Discuss the role of antenatal sonography in evaluation of the fetal skeletal system. Describe the features of various lethal skeletal dysplasias.

18. What is the imaging approach to a case of monoarthritis. Describe in detail individual conditions that can present with monoarthritis.

20. Discuss the role of imaging in spinal trauma.

BONES (2009)

SHORT NOTES

1. Differential diagnosis of expanding lesions of mandible
2. Pyknodysostosis
3. Benign cartilaginous bone tumours
4. Paget's disease of bone
5. Sero negative spondyloarthropathies
6. Acro-oteolysis
7. Osteoid osteoma
8. Sclerosing bone displasias
9. Atlantoaxial dislocation
10. Degenerative disc disease
11. Metastatic osseous disease
12. Solid/continous periosteal reaction
13. Fluorosis
14. Marfan's syndrome
15. Isotopes in bone imaging
16. Perthe's disease
17. Atypical osteosarcoma
28. Renal rickets
29. Pigmented villonodular synovitis
30. Chondrosarcoma
31. Fractures of craniovertebral junction
32. Rib notching
33. Ankylosing spondylitis
34. Hypertrophic osteo arthropathy
35. Osteoporosis
36. Osteopetrosis
37. Achondroplasia
38. Neuropathic joints
39. Giant Cell Tumor
40. Histiocytosis
41. Scurvy
42. Diffuse Idiopathic Skeletal Hyperosteosis
43. Discal calcification
44. Enchondroma
45. Developmental dysplasia of hip
46. Cleidocranial dysplasia
47. Osteogenesis imperfecta
48. Fibrous dysplasia
49. Diaphyseal Achalasis
50. Morquio's disease
51. Down's syndrome
52. Osteomyelitis in infants

53. Brodie's abscess
54. Congenital syphillis
55. Caffey's disease
56. Early radiographic findings in Rheumatoid arthritis
57. Psoriatic arthritis
58. Reiter's syndrome
59. Interrupted perioteal reaction
60. Anterior knee pain
61. Osteoarthritis
62. Gout
63. Osteoblastoma
64. Conventional osteosarcoma
65. Osteochondroma
66. Aneurysmal Bone Cyst
67. Hemangioma of bone
68. Solitary bone cyst
69. Ewing's sarcoma
70. Adamantinoma
71. Thalassemia
72. Sickle cell anaemia
73. Skeletal manifestation of leukemia
74. Primary bone lymphoma
75. Hemophilia
76. Radiological features of Hyperparathyroidism
79. Radiological Features of Hypothyroidism
77. Myositis ossificans
78. Salter Harris fractures
79. Slipped capital femoral epiphysis
80. Renal osteodystrophy
83. Pyogenic and tuberculous osteomyelitis in the spine
84. Septic arthritis
86. MRI in intervertebral disc prolapse.
87. MRI in avascular necrosis of hip.
88. MRI in cruciate ligament tear
89. Spinal tuberculosis
90. Discoid Meniscus
91. Synovial osteochondromatosis.
92. Metaphyseal lucent bands.
93. Metaphyseal dense bands
94. Erlenmeyer flask deformity
95. Bone infarct
96. Maffucci syndrome
97. Role of CT in faciomaxillary trauma
98. MRI in meniscal injuries
99. Carpal tunnel syndrome

100.Radiography in shoulder dislocation
101.Radiography in Cervical spine trauma
102.Ivory vertebra
103.Chordoma
104.Plasma cell disorders
105.Osteomalacia
106.Juvenile rheumatoid arthritis
107.Reflex symphathetic dystrophy syndrome
108.Acromegaly
109.Pseudogout
110.Osteochondritis.
111. Radiography In Assessment Of Wrist Pathologies
112. Role of skeletal radiography in age estimation.
113. MR imaging of the spinal bone marrow.

C.V.S.

MAJOR QUESTIONS

1. How as a Radiologist do you approach a suspected case of congenital heart disease. Discuss in detail various cyanotic congenital heart diseases.

2. Discuss coronary artery anatomy and its congenital variations. Elaborate on the role of computed tomography in assessment of coronary artery disease.

3. Briefly describe the pulmonary arterial anatomy. Discuss in detail the role of a Radiologist in management of a suspected case of pulmonary thromboembolism.

4. Discuss the role of a Radiologist in management of a case presenting to the ER with suspected acute condition of the aorta.

5. Discuss the principles, techniques, advantages, limitations and complications of catheter angiography.

6. Discuss the role of MDCT in evaluation of a elderly patient presenting to the ER with acute chest pain.

7. Briefly describe the embryological development of the heart. Discuss the imaging features of Acyanotic congenital heart disease.

8. Discuss the principles, techniques, advantages, limitations of CTA and MRA

9. Discuss the role of a radiologist in management of a patient with vascular claudicating pain.

C.V.S.

SHORT NOTES

1. Cardiac and pericardiac calcification
2. Pulmonary stenosis
3. Cardiac tumours
4. Ebsten's anomaly.
5. Ultrasound and colour Doppler features of DVT
6. Ventricular aneurysm
7. Role of Radio isotope in pulmonary embolism
8. Ultrasound in peripheral vascular disease
9. Mitral valvular disease
10. Anomalies of aortic arch and its major branches.
11. Radio-isotopes in cardiac imaging
12. Imaging of non – neoplastic pericardial disease
13. Fetal circulation
14. Left to right shunts
15. Pulmonary venous hypertension
16. Cardiogenic Vs non-Cardiogenic pulmonary edema
17. Acute and chronic pulmonary arterial hypertension
18. Thoracic aortic aneurysm
19. Radiography in cardiomegaly and individual chamber enlargement.
20. Pre operative assessment of A.V. fistula
21. Imaging in cardiomyopathies

22. Coronary artery anomalies
23. Co-arctation of aorta
24. Normal pericardial anatomy
25. Embolic agents
26. Subclavian steal syndrome
27. Lower limb varicose veins
28. Total anomalous pulmonary venous drainage.
29. Tetralogy of Falot
30. Partial anomalous pulmonary venous drainage.
31. VSD
32. ASD
33. Aorto-arteritis.
34. Aortic dissection

BREAST (2009)

1. Discuss the role of a Radiologist in management of palpable and non palpable breast lesions utilizing X-ray mammography and sonomammography.
2. Discuss the differential diagnosis of an incidentally discovered breast lump and the different modes of investigation you will adopt to arrive at a provisional diagnosis.
3. Breast calcifications: Mammographic evaluation

SHORT NOTES

1. Benign calcifications / Calcifications in benign breast disease4
2. Mammograpic (views) projections
1. BI-RADS
2. Calcifications in malignant breast disease
3. Pre-operative localization of non palpable breast disease.
4. Benign breast masses
5. Mammographic signs of malignancy
6. Sonomammography
7. Benign breast conditions that mimic malignancy
8. Microcalcifications in mammography
9. Cystic lesions of the breast
10. Post operative breast imaging

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GIT 2009

MAJOR QUESTIONS

1. Describe barium swallow examination. Discuss the imaging approach to an elderly patient presenting with dysphagia.

2. Discuss the role of a radiologist in management of jaundice in an adult patient.

3. Discuss the role of imaging in gastrointestinal obstruction in neonatal and pediatric age group.

4. Classify pancreatic neoplasms. Discuss the role of imaging in evaluation of these tumours.

5. Discuss the role of an interventional radiologist in hepatic and biliary disease.

6. Enumerate the causes of upper GI tract bleeding. How will you approach to investigate and manage a case of hematemesis.

7. Discuss the role of a radiologist in a 40 yr old male patient presenting to the ER with acute abdominal pain in the right hypochondrium & epigastrium.

8. Discuss the role of Radiologist in a 35 yr old female presenting with lower abdominal pain.

9. Discuss the principle, technique & utility of various imaging modalities with special emphasis on enteroclysis in evaluation of the small bowel. Discuss in detail malabsorption syndrome.

10. Discuss the role of imaging in evaluation of pediatric abdominal masses.

11. Enumerate the causes of lower GIT bleed and discuss the role of Radiology in evaluation and management of lower GI bleed.

12. Discuss the principles, technique and utility of various imaging modalities in
evaluation of large bowel. Discuss role of imaging in evaluation of inflammatory

diseases of the colon.

13. Discuss the role of imaging in hepatic tumours in adults.

14. Imaging assessment and management of Pancreatitis.

15. Discuss the cross sectional anatomy of retro peritoneum and describe in detail primary retroperitoneal tumors.

16. Enumerate pre-malignant conditions of GIT. Describe imaging features of small and large bowel malignancies

17. Discuss the technique of barium meal examination. Describe radiological and imaging features of gastric pathologies.

18. Discuss the role of Imaging in a case of blunt abdominal trauma.

19. Describe imaging appearances of abdominal tuberculosis

20. Discuss the Imaging of intestinal obstruction in adults.

21. Describe the blood supply of the large and small intestine. Discuss the role of a radiologist in evaluation and management of a suspected case of bowel ischemia.

22. Discuss the imaging in a case with suspected acute appendicitis.

23. Describe embryology of gut rotation and fixation. Discuss the differential diagnosis of a neonate with bilious vomiting.

24. Discuss the role of imaging in upper GI obstruction in pediatric age group.

25. Describe the anatomy of pancreas. Discuss imaging in pancreatic islet cell tumours.

26. Discuss the role of Ultrasound and CT diffuse liver disease.

27. Plain radiography in evaluation of acute abdomen.

28. Discuss the imaging of abdominal lymphoma.

29. Discuss the imaging approach in a 50 year old male presenting with right iliac fossa mass.

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SHORT NOTES

1. Pharmacoradiology in the Gastrointestinal tract
2. Inflammatory fatty masses of the abdomen
3. Radiological interventions of the hollow viscera
4. Gastro intestinal scintigraphy
5. Endoscopic ultrasound
6. Coeliac plexus block
7. CT colonography
8. Ultrasonography in evaluation of Gall bladder
9. Choledochal cyst
10. Budd chiari syndrome
11. Hiatus Hernia
12. Ultrasonography in jaundice.
14. Barium enema technique and findings in colonic malignancy.
13. Cystic lesions of liver
14. Cystic neoplasms of pancreas
15. Sialography
16. Cystic lesions of jaw
17. Mechanical small bowel obstruction
18. CT Imaging of acute pancreatitis
19. Oesophageal atresia and tracheo-oesophageal fistula
20. Pre-malignant conditions of the intestine.
21. Ulcerative colitis
22. Benign gastric tumors
23. Radio-isotopes in Hepatobiliary diseases
24. Ultrasound in evaluation of bowel diseases
25. Ileocaecal tuberculosis
26. Ultrasonography in abdominal tuberculosis

27. Ultrasound and Doppler sonography in portal hypertension.
28. Ultrasound imaging of appendicitis
29. Anorectal malformation
30. Pheochromocytoma
31. Gastric ulcer
32. Achalasia cardia
33. Meconium ileus
34. Superior mesentric artery syndrome
35. Gastrointestinal manifestations of AIDS
36. Oesophageal Diverticuli.
37. Megacolon
38. Ultrasound in liver abscess
39. Pneumobilia
40. Splenic masses
41. Meckel's diverticulum
42. Malrotation of the intestine
43. Biliary strictures
44. Intussusception
45. Oesophageal varices
46. Haemangioma of the liver
47. Neuro enteric cyst
48. Normal and abnormal extrinsic impressions on a esophagogram.
49. Gastric volvulus
50. Crohn's Colitis
51. Lymphoma of the GIT
52. Pneumoperitoneum
53. Gastric leiomyoma
54. Duodenal tumours
55. Barium findings in coeliac disease
56. Hirschprung's disease
57. Intramural air in G.I.T.

58. Subphrenic abscess
59. CT Imaging of hepatocellular Carcinoma
60. Imaging of Cholangio Carcinoma
61. Liver metastasis
62. Hepatic hydatid disease
63. Ultrasound in pancreatitis
64. Pancreatic pseudocyst
65. Biliary atresia
66. Congenital hypertrophic pyloric stenosis
67. Sigmoid volvulus
81. Cholecystitis
68. Development of pancreas and its developmental anomalies.
69. Gastrooesophageal junction.
70. Necrotising enterocolitis
71. Segmental anatomy of liver and its importance
72. Vascular complications of pancreatitis
73. Endocrine tumours of pancreas
74. Syndromes with GIT polyposis.
75. Retroperitoneal Fibrosis.
76. MRI in liver masses
77. Hepatic masses of childhood.
78. Small bowel neoplasms
95. Role of Angiography in lower G.I tract bleeding
96. Transjugular intrahepatic portosystemic shunt
97. TACE.
98. Adenomyomatosis of the gall bladder
100. Carcinoid tumour
101. Internal abdominal Hernias
104. GIST
105. Gastroesophageal reflux disease (GERD)

106. CT & PET-CT in oesophageal carcinoma
107. Motility disorder of oesophagus
108. Barium preparations for GIT studies
109. Hypotonic duodenography
110. Enteroclysis
112. Radionuclide imaging of GIT
114. Alimentary tract manifestations of systemic sclerosis
115. CT colonography
116. Diverticular disease of colon
117. Fistula – in – ano
118. Peritoneal neoplastic disease
120. Meconeum ileus
121. MDCT Protocol of evaluation of liver
123. Focal nodular hyperplasia (FNH)
124. Hepatic adenoma
127. Portal hypertension
128. Imaging in hepatic trauma
129. Imaging in splenic trauma.
131. PTC
132. Primary sclerosing cholangitis
133. Percutaneous liver tumour ablation
135. CT severity index in acute pancreatitis
136. MRCP
137. Radiology of the post operative stomach
138.Neonatal Jaundice.

RESPIRATORY SYSTEM

MAJOR QUESTIONS:

1. Discuss the imaging of cystic and cavitating lesions of the lung
2. Classify mediastinal masses and discuss the imaging findings of anterior mediastinal masses
3. Briefly mention the causes of respiratory distress in newborn. Discuss their imaging findings in detail.
4. Classify the tumors of lung. Discuss the imaging features and staging of bronchogenic carcinoma
5. Describe the technical aspects of HRCT of the lung. Describe the imaging features of collagen vascular diseases in lung.
6. Discuss the imaging in occupational lung diseases.
7. Discuss the pre and postnatal imaging features of congenital lung diseases
8. Discuss the anatomy of diaphragm and normal variation. Discuss the imaging findings of diaphragm and related pathologies
9. Describe mediastinal anatomy. Discuss the imaging findings in posterior mediastinal mass.
10. Discuss in detail the imaging manifestations of AIDS in the chest.

11. Describe the mechanism and causes of lung collapse. Discuss the imaging of various pattern of lung collapse.

12. Discuss the imaging findings of various lesions involving the ribs

13. Describe the radiological anatomy of hypopharynx and larynx and discuss the role of imaging in assessment of laryngeal pathologies.

14. How will you approach a case of solitary pulmonary nodule?

15. Discuss the anatomy of secondary pulmonary lobule. Discuss the pattern of interstitial lung diseases on HRCT and briefly discuss their differential diagnosis.

16. Imaging of the pleural and chest wall pathologies
17. Discuss the imaging of various interstitial pneumonias on HRCT.

18. Thoracic imaging in intensive care patient.

RESPIRATORY SYSTEM

SHORT NOTES

1. Wegener's granulomatosis
2. Thoracic manifestations of histocytosis
3. Lung changes in mitral stenosis
4. Unilateral opaque hemithorax
5. Ventillation perfusion studies by Radionuclide scanning
6. Pulmonary sarcoidosis
7. Fungus ball and its differential diagnosis.
8. Lymphangitis carcinomatosis
9. Fine needle aspiration of lung lesion
10. Metastatic lung lesion
11. Radiological anatomy of bronchopulmonary segments
12. Superior sulcus tumours
13. Bronchogenic cyst
14. Pneumomediastinum
15. Mc Leod's syndrome
16. Agenesis of lung
17. Alveolar Microlithiasis
18. Round atelectasis
19. Sub pulmonic effusion
20. Bilateral upper lobe fibrosis of the lung
21. Cystic adenomatoid malformations
22. Scimitar syndrome
23. Congenital lobar emphysema

24. Mediastinal lymphnodes and lymphatic drainage of the lungs
25. Mediastinal lines & stripes
26. Diaphragmatic hernias
27. Pneumothorax
28. Thymic tumours
29. Neuroenteric cyst
30. Broncho alveolar carcinoma
31. Lung abscess
32. Pneumocystic carinii pneumonia
33. Hydatid cyst in lung
34. Bronchiectasis
35. Asbestosis
36. Pulmonary odema
37. Rheumatoid lung
38. Silicosis
39. Radiation pneumonitis
40. Coal workers pneumoconiosis.
41. Bacterial pneumonias in adults
42. Respiratory distress Syndrome.
43. Pulmonary alveolar proteinosis.
44. Bronchopulmonary aspergillosis
45. Pulmonary hamartoma.
46. Cystic mediastinal tumours
47. Cystic fibrosis
48. Duplication cyst
49. Fibrosing mediastinitis
50. Germ cell tumours of mediastinum
51. Hiatus hernia
52. Pleural tumours
53. Viral pneumonias
54. Empyema thoracic
55. Primary pulmonary tuberculosis
56. Post primary tuberculosis
57. CT in evaluation of tracheo bronchial disease
58. Emphysema
59. BOOP
60. Bronchial carcinoid
61. Systemic sclerosis
62. Drug induced lung disease
63. Hypersensitivity pneumonitis
64. Diaphragmatic rupture
65. Bronchopleural fistula
66. Intravascular catheters in chest
67. Diffuse pulmonary hemorrhage
68. Bronchial artery embolisation

69. Congenital diaphragmatic hernia
70. Oesophageal atresia and trachea oesophageal fistula
71. Ultrasound in assessment of chest diseases
72. Pulmonary sarcoidosis
73. Pulmonary sequestration
74. CT bronchoscopy and its utility
75. Rheumatoid lung disease
76. Injuries to the lung
77. Imaging in thymic lesions
78. Eventration of the diaphragm
79. Pulmonary infarction
80. Fungal diseases of the lung

GENITOURINARY TRACT (GUT)

MAJOR QUESTIONS:

1. Discuss the embryology and congenital anomalies of the kidney, ureter, bladder and urethra. Discuss the role of imaging in their evaluation.

2. Classify renal tumours in adults. Describe in detail imaging findings in malignant renal tumours.

3. Discuss role of Radiologist in evaluating suspected case of hypertension of renal origin.

4. Discuss imaging of hypertension in a young adult.

5. Imaging in Renal transplantation.

6. What are the causes of hematuria? Describe the imaging approach in a case of hematuria.

7. Imaging approach in evaluation of a mass in the lumbar region in neonatal and pediatric age group.

8. Imaging approach in evaluation of a mass in the lumbar region in adults.

9. Discuss the evaluation of renal cystic lesions and cystic diseases of the kidney.

10. Describe radiology and Imaging features in tuberculosis of genito urinary tract.

11. What are the categories of renal injury. Discuss the role of Radiologist in evaluation and management of Renal trauma.

12. Discuss the role of radiology in imaging and management of female infertility

13. Describe the types of IUGR. Discuss the role of Radiologist in evaluation of IUGR.

14. Classify ovarian tumours. Discuss the role of imaging in ovarian tumours.

15. Discuss the role of ultrasound in congenital anomalies of brain, GIT and GUT in antenatal examinations of a pregnant woman.

16. Enumerate renal masses in children. Describe in detail the radiological and imaging features of Wilm's tumour

17. Describe the radiological and imaging approach in male infertility

18. Describe the embryology of the female genital tract. Discuss the imaging of mullerian duct anomalies.

19. Discuss imaging of adnexal masses.

20. Describe ultrasound features of first trimester pregnancy. Enumerate the causes of bleeding in first trimester and discuss their imaging features

21. Role of ultrasound in first trimester of pregnancy

22. Describe the role of imaging in Acute pelvic pain in females

23. Role of CT & MRI in gynaecological malignancies

24. Enumerate the causes and discuss the role of imaging in urinary tract obstruction

25. Discuss the imaging features of infective diseases of the kidney

26. Ultrasonography of the scrotum: Discuss the anatomy and pathologic entities

27. Discuss the imaging of placenta

28. Classify adrenal lesions. Discuss the role of CT & MR in evaluation of adrenal lesions.

29. Describe the role of radionuclide studies in urinary system

30. Sonographic markers of chromosomal anomalies

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SHORT NOTES:

1. Renal cyst
2. Anatomy of male urethra & ASU
3. Infantile polycystic disease of kidneys
4. Nephrocalcinosis
5. Vesicular mole
6. Papillary necrosis
7. Posterior urethral valve
8. Vesico ureteral reflux
9. Percutaneous nephrostomy
10. Pelvimetry
11. Prune belly syndrome
12. Fetal viability in first trimester
13. Hysterosalphingography
14. Pseudotumours of kkidney
15. Horse-Shoe kidney
16. Neurogenic bladder
17. Retroperitoneal fibrosis
18. Phaeochromocytoma
19. Acute pyelonephritis
20. Chronic pyelonephritis

21. Renal vein thrombosis
22. Pelviureteric junction obstruction
23. Ureteric stricture
24. Filling defect in the urinary bladder
25. Medullary sponge kidney
26. Ureterocoele
27. Varicocoele
28. Retrocaval ureter
29. Role of CT in adrenal tumours
30. Imaging in lower urinary tract obstruction
31. Adenomyosis
32. Sonohysterography
33. Unilateral large kidney
34. Fibromuscular dysplasia of renal artery
35. Zonal anatomy of prostate
36. Role of USG and colour Doppler in renal failure
37. Imaging of intrauterine foetal death
38. Polycystic ovarian disease
39. Imaging of uterine fibroid
40. Epispadias exstrophy complex
41. Radionuclide imaging of urinary tract
42. Hypersecretion disorders of supra renals.
43. Endometriosis
44. Sonography in bleeding in first trimester
45. Merits and demerits of captopril renogram in renovascular hypertension
46. Xanthogranulomatous pyelonephritis
47. Renal angiomyolipoma
48. Doppler finding in renal artery stenosis
49. Benign tumours of kidney
50. Alimentary tract anomalies diagnosable in utero
51. Polyhydraminos
52. Testicular tumours

53. Acute scrotum
54. Neuroblastoma
55. CT in renal infections
56. Erectile dysfunction
57. Ovarian dermoid
58. 99-Tc DTPA
59. Role of sonography in transplant kidney
60. Renal rickets
61. Extra-uterine pregnancy
62. P N D T Act
63. Placenta praevia & Abruptio placenta
64. MR in Carcinoma cervix
65. Abnormal uterine bleeding in peri and post menopausal women
66. Gestational trophoblastic disease
67. MRI in evaluation of uterine anomalies
68. Imaging in chronic pelvic pain in a adult female
69. Adrenal adenoma
70. Adrenal incidentiloma
71. Biophysical profile
72. Urachal anomalies
73. Fallopian tube recanalisation
74. Sonography in placenta
75. Imaging of placenta
76. Imaging of cervix in pregnancy
77. Abdominal wall defects in fetus
78. CT & MR Urography
79. Imaging of donor transplant kidney
80. MIBG scan
81. Multicystic dysplastic kidney
82. Ovarian torsion
83. Adrenal haemorrhage
84. Antenatal assessment of fetal lung masses and mass like lesions

85. Role of unenhanced CT in acute abdomen
86. MCU
87. Emphysematous Pylonephritis
88. Multilocular cystic renal neoplasm
89. Wilm's tumour
100. Sonographic markers of Down syndrome
102. Ovarian follicular monitoring
103. MRI technique and normal anatomy of the uterus.

BASIC SCIENCES

MAJOR QUESTIONS

1. Classify intravenous contrast media. What are the advantages of newer generation of contrast media. Discuss their adverse reactions.
2. Describe the basic construction of a Xray tube and its recent advances.
3. Describe in detail the constituent of developer and fixer used in manual processing. Explain the formation of radiographic image on a film
4. What is an image intensifier. Draw a diagram and write in detail its construction and uses in radiology
5. Enumerate factors affecting radiographic image quality. How will you improve radiographic image quality.
6. What is maximum permissible dose? Describe the methods of radiation protection to the patient and staff in diagnostic radiology.
7. Describe in detail the structure and principle of Intensifying screen. Discuss the newer phosphor technology.

8. Discuss the principle of acoustics applicable to ultrasound imaging. Describe in brief the construction of transducers used in real time ultrasound.
9. Discuss in detail digital substraction angiography.
10. Describe the principles of computed radiography (CR) and digital radiography (DR).
11. Write the radiographic technique of the following:
    a) Towne's view b) Scaphoid bone views
    c) Skyline view of patella d) Schuller's view
12. Write the radiographic technique of the following
    a) Base of the skull b) Craniovertebral junction
    c) Apicogram d) Calcaneum
13. Write the radiographic technique of the following:
    a) Carpal tunnel view b) Water's view
    c) Nogaards Ball catcher view d) Sacroiliac joint

13. Discuss the principles of Doppler sonography and instrumentation. Discuss various Doppler controls and operating modes used in clinical Doppler sonography.
14. Discuss the CT anatomy of temporal bone
15. Discuss principles of CT and changes in technology over the years
16. What are the properties of x.rays and its harmful effects
17. Discuss the cross sectional anatomy of neck spaces
18. Discuss the imaging anatomy of the orbit
19. Discuss the imaging anatomy of the knee joint.
20. Discuss basic interaction of Xrays with matter.
21. Discuss the basic principles of MRI

22. Discuss the basic physics and Instrumentation of a mammographic unit. What are the different mammographic projections.
23. Discuss in detail the construction of a grid and explain how it helps in improving the radiographic quality
24. What are isotopes? What is the principle of SPECT. Mention the common application of radionuclide isotopes in diagnostic radiology.
25. Discuss the imaging anatomy of the shoulder joint.

SHORT NOTES

1. Embryology and anatomy of pancreas
2. Rectification
3. Describe the cross sectional details of the conventional Xray film and that of a one side coated film
4. Film processor
5. Scattered Radiation
6. High KV technique in chest Xray
7. Dark room safelight
8. Focal spot of Xray tube
9. Autotransformer
10. Rotating Anode
11. Peizo electric effect
12. Co2 Angiography
13. Personnel dosimetry systems
14. Compton effect
15. Anode Heel effect
16. Iohexol
17. Wedge filter
18. Paramagnetic contrast media
19. Fetal circulation
20. Macroradiography
21. Superior orbital fissure
22. Mobile xray unit
23. Air gap technique
24. Thermionic emission
25. Transformer
26. Sialography
27. MR angiography

28. 99 mTechnetium labeled radionuclide scans
29. Methods of evaluation of grid performance
30. Cross sectional anatomy of peritoneal spaces
31. Segmental anatomy of liver and its importance
32. Cross sectional anatomy of suprarenal glands. Enumerate hormones secreted by zones of suprarenal glands
33. MR myelography
34. Computed Radiograpy (CR) Artefacts
35. Xray beam restrictors
36. Line focus principle
37. Time gain compensation (TGC) and dynamic range in ultrasound
38. Myelography
39. CT artifacts
40. Dacryocystography
41. T-tube cholangiography
42. CT enterography
43. CT numbers
44. Post processing techniques in MDCT and their utility
45. Inversion Recovery sequence
46. PACS
47. Electromagnetic Reduction
48. I.V.U.
49. Process of Xray generation
50. Electrical circuits
51. Types of Xray film
52. Intra operative ultrasound
53. Principles of Gamma camera
54. MRI artifacts
55. Ultrasound artifacts

56. Tissue harmonic imaging
57. Bone densitometry
58. Paramagnetic MR contrast media
59. Iodixanol
60. Nephrogenic systemic fibrosis
61. Half value layer
62. CSF pathways
63. A.E.R.B and its controlling functions in radiology
64. High Frequency Generators

RECENT ADVANCES

MAJOR QUESTIONS

1. Discuss the principles of diffusion weighted imaging and its utility.
2. Discuss the role of MRI in obstetrics, especially in areas where it overcomes the limitations of ultrasonography and scores over it.
3. Describe the fundamentals of MR spectroscopy. Discuss its role in neuroimaging
4. Discuss imaging of aneurysms and CNS vascular malformations and the recent trends in their management.
5. Discuss the role of MRI in breast diseases.
6. Role of MRI in entrapment and compressive neuropathy of peripheral nerves of the upper extremity.
7. Hepatobiliary contrast agents.
8. Multiparametric MR imaging of the prostate.
9. Functional MR in neuroimaging.
10. Discuss the principles and basis of CT perfusion imaging and its various assessment parameters. Elaborate on the role of CT perfusion in Neuroimaging.
11. Describe segmental anatomy of the liver. Discuss imaging in liver transplantation.
12. Discuss the principles, instrumentation and methodology of PET imaging. Elaborate on its clinical applications in neuroimaging.
13. High intensity focused ultrasound (HIFU) – Principle, Instrumentation and its applications.
14. Discuss various images guided Musculoskeletal interventions
15. MR evaluation of pregnant patient with acute abdominal pain

16. Describe the instrumentation and principles of Radiofrequency ablation. Discuss the indications, patient selection, procedure and complications of its various implications.
17. Discuss the principles, instrumentation and methodology of PET imaging. Elaborate on its role in head and neck cancers
18. Recent trends in minimal invasive image guided therapies for hepatic malignancies
19. Discuss the principles and basis of CT perfusion imaging and its various assessment parameters .Define the role of CT perfusion in oncoimaging.
20. Describe the anatomy of the limbic system. Discuss imaging in temporal lobe epilepsy.
21. Discuss the role of MRI in imaging of the myocardium.
22. Discuss the advances in imaging and management of ischemic stroke.
23. Imaging in diffuse liver disease with emphasis on role of MRI.

RECENT ADVANCES

SHORT NOTES

1. MR Imaging of placenta
2. MRI in pelvic floor imaging
3. TRUS guided interventions
4. MR enteroclysis
5. MRI hepatobiliary specific contrast agent
6. 3D & 4D ultrasound in foetal imaging
7. Extra CNS utility of diffusion weighted imaging
8. MR tractography
9. Diffusion and perfusion weighted imaging in stroke
10. USG in Rheumatoid arthritis
11. MRI in temporomandibular joint
12. Peritoneal and kinematic imaging of spine
13. Comparision of CT & MR arthrography
14. Cine MR imaging and its utility
15. Flat panel detector
16. Cartilage imaging
17. Carotid stenting
18. CT cholangiography
19. Ultrasound contrast media
20. Post processing techniques in HRCT lung
21. Gradient echo imaging
22. Chemical shift imaging
23. Echoplanar imaging
24. Super paramagnetic MR contrast media
25. Imaging of the brachial plexus

26. Susceptability weighted imaging
27. Intrauterine foetal intervention
28. Recent advances in CT detector technology
29. Ultrasound elastography
30. Advantage and disadvantages of CR & DR
31. Dual source CT
32. SLAP and FLAP tear in shoulder joint
33. MR pelvimetry
34. Denta CT and its clinical applications
35. Factors affecting SNR in MRI
36. Pharmacological agents used in cardiac CT & MRI
37. MR coronary angiography
38. Describe the principles of parallel imaging technology and its clinical applications
39. Imaging of breast implant
40. Intraluminal MR contrast Agents
41. CT dosimetry
42. Vascular and biliary variants in the liver – implication for liver surgery
43. Steady state MR imaging sequences
44. Intraductal papillary mucinous tumour of pancreas
45. Whole body diffusion weighted imaging
46. Cardiac stress imaging
47. Carotid and vertebral artery dissection
48. MR perfusion weighted imaging
49. Nodal imaging on MR
50. Newer MR contrast media
51. MRI in endometrial pathologies
52. In phase and out of phase MRI imaging
53. MRI in bone marrow disease

54. PET in evaluation of lymphoma
55. PET in evaluation of GIT

QUESTION BANK

C.V.S.

MAJOR QUESTIONS:

1. Describe the development of atrial septum. Enumerate the common atrial septal defects and discuss their radiological features.
2. Describe techniques of transfemoral arteriogram and its indications. Describe briefly the complications encountered during an angiogram.
3. What is the etiology of mitral stenosis? Describe the plain radiographic features in mitral stenosis.
4. How will you investigate a case of cardiomegaly?
5. Discuss the etiology of pericardial effusion and describe the diagnostic radiological features.
7. What are common causes of pulmonary embolism? Discuss the role of plain Roentgenograph, isotope scan, C.T. & angiogram.
8. Discuss the development of ventricular septum and common types of ventricular septal defect. Discuss radiological findings in Ventricular Septal Defect.
9. Descibe the causes of thoracic aortic aneurysm and what is the role of plain radiograph, CT, Ultrasound, MRI and angiogram in its diagnosis.
10. Discuss the role of Radiologist in assessing a patient with vascular claudication pain.
11. What is pulmonary hypertension? Describe the etiology and plain radiographic features of same.
12. Describe the indications, contraindications and the principle of balloon angioplasty. Describe the procedure of a peripheral angioplasty..
13. Discuss colour duplex ultrasound evaluation of atherosclerotic stenotic lesions of carotid arteries.
14. Ennumerate various imaging modalities used for evaluation of internal carotid artery stenosis and discuss merits and demerits of each of them.
15. Discuss various MR sequences used for evaluation of thoracic aorta.
16. What are the causes of deep vein thrombosis ? Discuss merits and demerits of various imaging modalities used in evaluation of DVT.
17. Describe the causes and plain radiographic features of Left – Right shunts
18. Role of MR in cardiac conditions.
19. Classify cardiomyopathies and describe the radiographic imaging findings..
20. CT angiography of chest – pulmonary embolism

Thoracic aorta
21. Describe the trends in Nuclear Cardiology and its usefulness and limitations.

CVS

SHORT NOTES

1. Cardiac and pericardial calcification.
2. Pulmonary stenosis
3. Cardiac tumors
4. Ebstein's anomaly
5. Colour Doppler vs venography in lower limb Deep Venous Thrombosis.
6. Ventricular aneurysm
7. Anomalous pulmonary venous drainage
8. Role of Radio isotopes in Pulmonary embolism
9. Ultrasound in peripheral vascular diseases.
10. Left atrial enlargement.
11. Lower limb Deep Venous Thrombosis.
12. Aortic arch anomalies
13. Superior venacaval syndrome
14. Imaging findings in mitral stenosis
15. Radio isotopes in cardiac imaging
16. Left atrial myxoma
17. Pericardial effusion
18. Foetal circulation
19. Describe the causes and plain radiographic features of Left – Right shunts
20. Pulmonary venous hypertension
21. Pulmonary artery hypertension
22. Patent ductus arteriosus
23. Isotopes in myocardial ischaemia
24. Pathogenesis and classification of dissecting aneurysm
25. Briefly outline the causes and radiographic features of left atrial enlargement.
26. Pathological anatomy of tetrology of fallot.
27. Parameters of assessing cardiac size and enlargement of individual cardiac chambers on plain x.ray.
28. Pathogenesis of A.S.D.
29. Benefits of power doppler sonography.
30. Determination of atrial situs.
31. Doppler findings in mid SFA occlusion with reformation of distal SFA.
32. Doppler evaluation of peripheral arteriovenous fistula.
33. Primary pulmonary hypertension
34. Thoracic radiologic findings in systemic vasculitis

35. Radiographic evaluation of ventricular enlargement
36. Anatomy and development of anomalies of conotruncal septum
37. Imaging in aortic dissection
38. Determination of the atrial situs
40. Imaging features of pericardial lesion

BONES

MAJOR QUESTIONS

1. Describe the calcium metabolism and radiological changes in hyperparathyroidism.
2. Discuss etiopathogenesis, clinical features and imaging appearances in Perthes disease.
3. A forty year old man presents with low back ache. Discuss the radiological approach.
4. Discuss the radiological findings in mucopolysaccharoidosis.
5. How will you radiologically investigate a case of scoliosis.
6. Classify bone tumors. Discuss the radiological diagnosis of primary malignant bone tumours.
7. Discuss the imaging findings in congenital dislocation of hip.
8. Describe sequence of changes seen in acute and chronic osteomyelitis as seen on plain x.ray. Discuss role of isotopes, ultrasound, CT & MRI in its diagnosis.
9. Classify osteogenic sarcoma and discuss the imaging features.
10. Discuss the role of Radionuclide scan in evaluation of a skeletal lesion.
11. Enumerate the seronegative arthropathies and discuss in detail the radiological features of rheumatoid arthritis.
12. Discuss the imaging appearances in a case of spinal tuberculosis.
13. Discuss the imaging features in a patient with multiple myeloma.
14. Describe the radiological appearances in renal osteodystrophy.
15. Enumerate the different causes of neuro arthropathies and describe their radiological features.
16. What are the causes of soft tissue calcification and describe their radiological features.
17. Discuss the radiological features of Gout and pseudo gout.
18. Value of plain skiagram of hand in hyper para thyroidism, acromegaly, spina ventosa, scleroderma, psoriatic arthropathy.
19. Role of MRI in the evaluation of the knee joint in ligamental and meniscal injuries.
20. Role of MRI in the evaluation of shoulder joint in trauma.
21. Role of MRI in evaluation of bone marrow disease.
22. Discuss Vit. D metabolism and describe the R/F of rickets and osteomalacia.

23. Discuss various benign bone tumors of vertebral column.
24. Discuss the differential diagnosis of osteoporosis. Describe the various imaging modalities in the diagnosis of osteoporosis.
25. Imaging of congenital lesions of the spine and spinal cord.
26. Role of imaging in the evaluation of hip joint in children.
27. Sero negative spondyloarthropathies
28. Multiple Myeloma
29. Describe differential diagnosis of expansile lesions of long bone
30. D/D of expanding lesions in the metaphysic of long bones
31. Enumerate the causes of osteoporosis and use of CT in bone mineral studies

BONES

SHORT NOTES

1. Thoracic skeletal changes associated with C.V.S. diseases
2. Radiological features in nutritional rickets
3. Differential diagnosis of expanding lesions of mandible
4. Pyknodysostosis
5. Benign cartilaginous bone tumours
6. Paget's disease of bone
7. Spinal tuberculosis
8. Causes and differential diagnosis of absorption of tips of terminal phalanges
9. Osteoid osteoma
10. Developmental osteosclerotic lesions
11. Atlantoaxial dislocation
12. Lumbar disc prolapse
13. Metastatic osseous disease
14. Describe causes and differentiating features of a Single collapse vertebra.
15. Describe types of periosteal elevations and differentating features
16. Enumerate epiphyseal lesions with differential features of each
17. Fluorosis
18. Sub articular bone erosions
19. Marfan's syndrome
20. Isotopes in bone imaging
21. Common synovial diseases
22. Perthe's disease
23. Osteogenic sarcoma
28. Pathophysiology in renal rickets
29. Pigmented villonodular synovitis
30. Chondrosarcoma
31. Jafferson's fracture

32. Rib notching
33. Ankylosis spondylitis
34. Hypertrophic osteo arthropathy
35. Codman's triangle
36. Osteoporosis
37. Osteopetrosis
38. Achondroplasia
39. Neuropathic joints
40. Giant Cell Tumor
41. Histiocytosis
42. Scurvy
43. Heel – Pad thickness
44. Diffuse Idiopathic Skeletal Hyperosteosis
45. Discal calcification
46. Enchondroma
47. Congenital dislocation of hip
48. Cleidocranial dysplasia
49. Osteogenesis imperfecta
50. Fibrous dysplasia
51. Diaphyseal Achalasia
52. Morquio's disease
53. Down's syndrome
54. Osteomyelitis in infants
55. Brodies abscess
56. Congenital syphilis
57. Caffey's disease
58. Early findings in Rheumatoid arthritis
59. Psoriatic arthritis
60. Reiter's syndrome
61. Osteoarthritis
62. Gout
63. Osteoblastoma
64. Juxtacortical osteosarcoma
65. Chondroblastoma
66. Osteochondroma
67. Aneurysmal Bone Cyst
68. Hemangioma of bone
69. Solitary bone cyst
70. Ewing``sarcoma
71. Adamantinoma
72. Thalassemia
73. Sickle cell anaemia
74. Radiological features of leukemia affecting musculoskeletal system
75. Primary bone lymphoma

76. Hemophilia
77. Radiological features of Hyperparathyroidism
78. Radiological Features of Hypothyroidism
79. Myositis ossificans
80. Salter Harris fracture
81. Slipped capital femoral epiphysis
82. Renal osteodystrophy
83. Differentiating features of septic and tuberculous osteomyelitis in the spine
84. Septic arthritis
85. Soft – tissue calcification.
86. Developmental osteosclerotic lesions.
87 CT vs MRI in intervertebral disc prolapse.
88 MRI in avascular necrosis of hip.
89. MRI in anterior cruciate ligament tear
90. MRI in spinal tuberculosis
91. Discoid Meniscus
92. Synovial osteochondromatosis.
93. Metaphyseal luscent bands.
94. Metaphyseal dense bands
95. Ehlenmeyer flask deformity
96. Periosteal reaction in childhood
97. Bone infarct
98. Maffucci syndrome
99. Role of CT/MR in spine trauma
100. Role of CT in facio maxillary trauma
101. Benign cartilaginous bone tumors
102. Skeletal changes in leukaemia
103. Marfan's syndrome
104. Isotopes of bone imaging
105. RIF in synovial TB
106. Enumerate epiphyseal lesions with differential features of each
107. Types of peristeal lesions and differentiating features
108. Describe the imaging techniques and diagnostic criteria of Rotator cufftears
109. Metastatic osseous disease
110. Radiology of painful shoulder

C.N.S.

MAJOR QUESTIONS

1. Classify various supratentorial tumours and describe in detail CT findings of the same in children less than 2 yrs of age.
2. Name supratentorial tumours occuring in adults. And describe in detail CT findings of astrocytoma and meningioma.
3. Discuss briefly differential diagnosis of various space occupying lesion of CP angle. Describe the imaging features of acoustic neuroma.
4. Discuss differential diagnosis and imaging features of infratentorial tumours in children.
5. What are the causes of subarachnoid haemorrhage? Discuss the radiological approach in a suspected case of subarachnoid haemorrage.
6. Describe the radiological anatomy of cranio vertebral junction. Describe the role of plain x.ray in evaluation of C.V. junction.
7. Descibe the anatomy of sellar and parasellar area. Discuss the imaging features of craniopharingioma along with its differential diagnosis.
8. What is phakomatosis? Enumerate the various conditions considered in this group and describe radiological features of Neurofibromatosis.
9. Describe CT and MRI features in post traumatic extraaxial and intraaxial haemorrhage of the brain.
10. Describe CT and MRI features in various stages of cerebral infarct.
11. Describe the imaging features in congenital infections of brain in neonates.

12. Describe the radiological anatomy of ventricles and basal cisterns of brain. Discuss the radiological findings in hydrocephalus.
13. Classify common types of spinal dysraphism and discuss Radiological Features of diastematomyelia.
14. How will you radiologically investigate a case of spinal trauma,.
15. Classify spinal tumours? Discuss differential diagnosis and Radiological features of extradural spinal tumours.
16. Classify various orbital tumours. Describe radiological features of tumours affecting the eyeball (globe).
17. Describe radiological features of Arnold Chiari malformations.
18. Patient presents with unilateral proptosis. Discuss the differential diagnosis and briefly describe the radiological features.
19. Describe CT and MRI features of intra-axial hemorrhage.
20. Spinal vascular malformations - Imaging features
21. Role of MRI in diagnosis of inherited white matter disease (Leukodystrophies)
22. Causes and imaging protocols in acute paraplegia
23. Role of colour doppler in carotid and vertebral arterial diseases
24. Enumerate the intraventricular tumors and discuss their imaging findings
25. Discuss the normal CSF pathways and describe the etiopathylogy of non neoplastic causes of hydrocephalus
26. CT and MRI imaging features of CNS vasculitis
27. Describe the imaging features and different diagnosis of spinal neoplasms
28. Discuss the role of CT and MRI in cerebral vascular accidents
29. Describe the imaging findings in non neoplastic orbital space occupying lesions
30. Technique, applications and interpretation of MR venography of brain
31. Ring enhancing lesions
32. CNS infections in Newborn.
33. Arnold Chiari malformations
34. Ring lesions on CT of brain
35. Define phakomatoses. What are the various disorders of the group? Describe the clinical manifestations and radiological manifestations of tuberous sclerosis
36. Discuss the various R/F in pituitary diseases as seen in CXR, CT & MRI
37. Causes and D/D of calcification in the brain
38. Classify the midline anomalies of the brain and discuss the role of imaging methods in identifying each
39. Enumerate the various neurocutaneous syndrome and describe the imaging findings in any of these two:
CT v/s MRI in brain tumours
40. Patient presented to you with U/L proptosis. Discuss the DD and describe the R/F

CNS

SHORT NOTES

1. CT in neuro tuberculosis
2. Neurocysticercosis
3. Anatomy of cerebral ventricles
4. Intramedullary tumours of cord
5. Intradural extramedullary tumors of cord
6. Circle of Willis
7. Venous drainage of brain
8. Multiple sclerosis
9. Empty sella
10. Struge weber syndrome
11. Tuberous sclerosis
12. Syringomyelia
13. Pituitary adenoma
14. Pseudo tumours of orbit
15. Cerebral lymphoma
16. Craniostenosis
17. Raised intracranial tension
18. Dandy walker complex
19. Choroid plexus papilloma
20. Ultrasound in orbital diseases
21. Cerebral herniation
22. Corpus callosal agenesis
23. Holoprosencephaly
24. Schizencephaly
25. Cystic lesions in infratentorial region
26. Haemorrhagic infarction
27. Cerebral edema
28. Tumours of pineal region
29. Oligodendroglioma
30. Ependymoma
31. Medulloblastoma
32. Arachnoid cyst
33. Epidermoid
34. Post meningitis sequelae
35. Cerebral abscess
36. Vertebral hemangioma
37. Chordoma
38. Orbital meningioma
39. Thyroid ophthalmopathy

40. Vascular tumors of orbit
41. Hemangioblastoma
42. Post traumatic sequelae in brain
43. Orbital tumours in children
44. Herpes encephalitis
45. HIV manifestations in CNS
46. Role of CT in CVA
47. Anatomy of circle of willis and imaging features of aneurysms of this region
48. Write differentiating features of hyperdense lesions in brain
49. Differential diagnosis of a incidentally discovered thyroid nodular swelling, the different modes of investigations you will adopt to arrive at a provisional diagnosis.
50. Mucocele of paranasal sinuses
51. Role of ultrasound in thyroid diseases
52. Role of radio isotopes in thyroid diseases
53. Imaging in laryngeal tumours
54. Dissection of carotid arteries
55. Optic nerve glioma
56. Bare-orbit
57. MR findings of intra axial subacute hemorrhage
58. Diastematomyelia
59. Acoustic neuroma
60. Alexander's disease
61. Adrenoleukodystrophy
62. Metachromatic leukodystrophy
63. Parkinsonism - MR features
64. Normal pressure hydrocephalus
65. Meningioma - Imaging features (CT & MRI)
66. Venous infarct - Imaging parameters
67. Craniopharyngioma
68. Vein of galen malformation
69. Cavernous angioma
70. Arteriovenous malformation
71. Normal venous anatomy of the brain
72. Heterotopias
73. Chiari malformations.
74. Role of SPECT in CNS infections
75. Retinoblastoma
76. Orbital lymphoma
77. Transcranial doppler
78. MoyaMoya disease
79. MRI and CT imaging features of intracranial metastases
80. What is DSA. Discuss the indications and limitations in the areas of head and neck
81. CT findings of cysticercosis of brain

82. Radiological diagnosis of extradural spinal masses
83. Imaging of the internal/external carotid arteries
84. Carotico vemous fistula
85. Radioisotope brain scan
86. Discuss the R/F of cerebral lymphoma
87. CT Myelography
88. Radiology in atlanto axial dislocation
89. Compare and contrast of Myelography and MRI
90. Classify the common types of Spinal Dysraphisms and R/F of diatematomyelia
91. Causes and D/D of calcification in the brain
92. Imaging in SAH
93. Lumbar disc prolapse
94. Imaging in SAH
95. Craniostenosis
96. Parameters in the assessment of platybasia
97. CT and angiographic features of meni9ngioma and malignant glioma
98. Craniostenosis
99. Parameters in the assessment of platybasia
100. CT and angiographic features of meningioma and malignant glioma
101. Etiological classification and radiological diagnosis of osteolytic lesions in the skull
102. CT findings in intracranial hematoma
103. Myelograph6y as a diagnostic tool
104. Etiology and imaging features of posterior scalloping of vertebrae
105. Neurosonography
106. Pseudotumor orbig
105. Pseudotumour orbit
106. Role of CT in proptosis

GUT

MAJOR QUESTIONS:

1. Describe the radiology and imaging approach in a fifty year old male presenting with a mass in the right iliac fossa.
2. Classify congenital anomalies of the kidney. Discuss the advantages and disadvantages of different modalities to diagnose them.
3. Classify renal tumours. Describe in detail the radiological & imaging findings in renal cell carcinoma.
4. What are the composition of various renal stones. Describe the imaging approach in diagnosing a radiolucent calculus.
5. Discuss the role of radiology and radioisotopes in the diagnosis of renal hypertension.

6. Enumerate the complications of renal transplant surgery. Describe the imaging approach in diagnosing them.
7. What are the causes of haematuria? Describe the radiological and imaging approach in haematuria.
8. Briefly mention the various causes of unilateral large kidney with I.V.P. features of each.
9. Classify cystic diseases of the kidney. Describe the radiological and imaging features in polycystic kidney.
10. Describe the radiology and imaging features in tuberculosis of urinary tract.
11. What are the categories of renal injury. Discuss the radiological investigations and appearances in a case of renal trauma.
12. Discuss the role of radiology and imaging in the evaluation of a female infertile patient.
13. Describe the types of intrauterine growth retardation. How do you assess I.U.G.R by ultrasound.
14. Classify ovarian tumours. Discuss the role of radiology and imaging in diagnosing malignant and benign ovarian tumours.
15. Discuss the role of ultrasonography in G.I.T., G.U.T and brain anomalies of the foetus on antenatal examination of pregnant lady.
16. Role of radiology diagnosing urothelial tumours.
17. Describe indications, techniques and normal appearance on micturating cysto urethrogram.
18. Describe indications and contraindications of Intravenous urogram. Discuss various
contrast media used for same.
19. A child presents with urinary tract infection. Provide a protocol for imaging and mention their features.
20. Enumerate renal masses in children. Describe in detail the radiological and imaging features of Wilm's tumour.
21. Describe in brief the clinical features of ectopic pregnancy. Describe the ultrasound features in ectopic pregnancy.
22. Classify bladder neoplasm and an approach to a case of bladder mass.
23. Describe the radiological and imaging approach in male infertility.
24. Describe the anatomy of renal vessels and role of Radiologist in management of a suspected case of renal hypertension.
25. Describe the various mullerian duct anomalies related to the uterus. How would you distinguish a 'SEPTATE' from a BICORNUATE uterus.
26. Enumerate the adenexal masses. Mention the advantages of endovaginal gray scale sonography.
27. Describe ultrasound features of first trimester pregnancy.
28. Enumerate the adnexal masses and indicate the imaging choices and mention the advantages of endo vaginal gray scale sonography.
29. Discuss briefly various radiological interventional procedures in urinary tract.

30. Discuss the pathology of renal hypertension and radiological investigations of the same.
31. Role of CT and MRI gynaecological malignancies.
32. Diagnosis of urinary outflow tract obstruction
33. How would you evaluate a breast lesion with the help of different imaging modalities?
34. Discuss the role of different modalities in imaging the prostate.
35. Role of spiral CT in the evaluation of kidney and urinary tract.
36. Role of imaging in adrenal tumours. How would you go about investigating a case of Cushing syndrome.
37. Discuss the D/D of an incidentially discovered breast lump and the different modes of investigation you will adopt to arrive at a provisional diagnosis
38. Classify cystic renal disease and discuss their radiological appearance both with conventional and USG. Elaborate the role of the latter in the diagnosis and management of these lesions
39. How will you investigate a case of painless hematuria. What is the role of the Radiologist in the management

G.U.T.

SHORT NOTES

1. Renal cyst.
2. Anatomy of male urethra
3. Infantile polycystic disease of kidneys
4. Nephrocalcinosis
5. Development of kidney
6. Vesicular mole.
7. Papillary necrosis
8. Posteior urethral valve obstruction
9. Vesico ureteral reflux
10. Cushing's syndrome
11. Percutaneous nephrostomy
12. High dose urography
13. Placenta previa
14. Pelvimetry
15. Prune belly syndrome.
16. Blighted ovum
17. Hysterosalphingography
18. Pseudotumours of kidney

19. Renal duplication
20. Adrenal calcification
21. Horse-Shoe kidney
22. Nephroblastomatosis
23. Neurogenic bladder
24. Retroperitoneal fibrosis
25. Phaeochromocytoma
26. Renal ectopia
27. Renal Agenesis
28. Malrotation of kidneys
29. Acute pyelonephritis
30. Chronic pyelonephritis
31. Renal vein thrombosis
32. Pelviureteric junction obstruction
33. Ureteric stricture
34. Gas in the urinary tract
35. Urinoma
36. Filling defect in the urinary bladder
37. Medullary sponge kidney
38. Ureterocoele
39. Varicocoele
40. Retrocaval ureter
41. Significance of sonographic Placental grading
42. Conn's Syndrome
43. CT in adrenal tumour.
44. Etiological factors and significance of ureteral notching.
45. Discuss the role of radionuclide scan in transplant kidney.
46. Discuss the radiological features of lower urinary tract obstruction.
47. Briefly describe various causes of unilateral large kidney with IVU features of each.
48. Pyeloureteritis cystica.
49. Imaging in renal hypertension
50. Transrectal ultrasound of prostate.
51. Differentiation of renal cyst and renal tumour by IVU
52. CT features of adrenal tumours
53. Role of USG and colour doppler in renal failure11
54. Diagnosis of urinary bladder tumour
55. Imaging of intrauterine foetal death
56. Polycystic disease of kidney.
57. Discuss the role of imaging in uterine lesions
58. Epispadias exstrophy complex
59. Radionuclide imaging of urinary tract
60. Ennumerate hyper secretion disorders of supra renals. Discuss the role of CT in any one of them.

61. Endometriosis.
62. Renal neoplasms in pediatric age group.
63. RN scanning in renal disease
64. Role of sonography in bleeding in first trimester pregnancy.
65. Merits and demerits of captopril renogram in renovascular hypertension.
66. Normal and abnormal endometrial patterns as seen on ultrasound imaging.
67. Xanthogranulomatous pyelonephritis.
68. Renal angiomyolipoma.
69. Renal angiography finding in polyarteritis nodosa.
70. Doppler finding in renal artery stenosis.
71. urachal masses
72. Benign tumours of kidney
73. Alimentary tract lesions diagnosable in utero
74. Polyhydraminos
75. Testicular tumours
76. Acute scrotum
77. Neuroblastoma
78. Role of CT in renal trauma
79. Role of CT in renal infections
80. Zonal anatomy of the prostate
81. Erectile desfunction
82. Polycystic ovaries
83. Ovarian dermoid.
84. Epispadias extrophy complex
85. Imaging in renal hypertension
86. 99-Tc DTPA
87. Discuss the merits and demerits of captopril renogram in renovascular hypertension.
88. Describe the relative merits and demerits of IVP USG and CT in the diagnosis and
89. management of renal masses
90. Role of sonography in renal transplant
91. CT evaluation of renal trauma
92. Pathology of xantho granulomatous in the paediatric age grou
93. Radionuclide scanning in renal diseases
94. Renal rickets
95. Briefly, describe conventional and modified IVP Discuss its findings in CRF and chronic
96. renal infections
97. Papillary necrosis
98. Pathology of xantho granulomatous pyelonephritis
99. Diagnosis of bladder tumors
100. Etiological factors and significance of ureteral notching
101. R/F of lower urinary tract infection

102. Describe the role of radio nuclides in transplanted kidneys
103. Briefly mention the various causes of U/L large kidney with IVP features of each
104. Role of radionuclide scanning in renovascular HT
105. Role of CT imaging in renal infections
106. Pathology of chronic pyelonephritis
107. Write an essay on Renal failure with special reference to radiological and imaging
108. procedure
109. Role of CT and MR in gynaecological malignancies
110. Molar pregnancy
111. Endometriosis
112. Extra-uterine pregnancy
113. Comparative evaluation of sono mammography and film screen mammography
114. Contribution of USG in monitoring the growth of the foetus during antenatal care
115. Intrauterine foetal death
116. Alimentary tract lesions diagnosable in –utero
117. Role of sonography in IUGR
118. Imaging of the placenta
119. Interventional techniques in urinary tract obstruction
120. Renal angiomyolipoma
121. Renal vein thrombosis aetiology and radiological features
122. Acute scrotum
123. Various investigative modalities for the transplanted kidney and give the normal findings
124. in each of them
125. Imaging of prostate
126. Pathophysiology of renal rickets

GASTROINTESTINAL TRACT

MAJOR QUESTIONS

1. What are the causes of dysphagia? Discuss the radiological approach to an elderly patient presented with dysphagia.
2. What is obstructive jaundice? What are the common causes leading to obstructive jaundice. How will you diagnose such a case with imaging modalities.
3. What are the causes of neonatal intestinal obstruction? Discuss the radiological investigations and appearances in each case.
4. Which imaging modalities are used to diagnose pancreatic lesions. Discuss their advantages and disadvantages.Discuss briefly the role of MRI in same.
5. Describe the blood supply of large intestine. Discuss the role of imaging modalities in inflammatory lesions of the colon.
6. Discuss the role of interventional Radiology in biliary system.
7. Enumerate the causes of upper GI tract bleeding. How will you approach to investigate and manage a case of haematemesis?
8. Discuss briefly the radiological investigations in a case of acute abdomen.
9. What is malabsorption syndrome? Enumerate the common causes and discuss barium study findings in them.
10. Discuss the radiological features of gastric and duodenal ulcer. Discuss "barium meal study vs endoscopy" in the diagnosis of ulcers.
11. Discuss radiological anatomy of gastro-oesophageal junction and radiological features of hiatus hernia.
12. Describe embryology of gut rotation and radiological features of malrotation of G.I.T.
13. Describe the development and radiological evaluation of anorectal anomalies.
14. Discuss the differential diagnosis of multiple nodular filling defects in the small bowel and role of imaging modalities.
15. Discuss the role of imaging modalities in portal hypertension.
16. Enumerate the causes of lower gastrointestinal tract bleed and role of radiology in evaluation and management of lower GI bleed.
17. Enumerate the various hepatic tumours.
18. Discuss the radiological approach for a patient suspected of having an abnormal extrinsic impression over oesophagus.
19. Describe the ultrasound and CT/MR findings of benign tumors of the liver
20. Discuss the causes of a space occupying lesion in spleen and how will you approach it.
21. Describe the radiological approach in a case of extrinsic impression on the greater curvature of stomach on endoscopy.
22. What is the importance of presacral space. Discuss the radiological appearance of space occupying lesions in that area.
23. Enumerate the complications of pancreatitis and discuss the radiological appearances
24. Discuss the radiological findings in a case of space occupying lesions in mesentry.

25. How will you radiologically investigate a suspected case of ulcerative colitis.? Discuss briefly its aetiopathology.
26. How will you investigate a patient with portal hypertension.? Discuss the role of a Radiologist in its management.
27. Enumerate pre malignant conditions of GIT. Describe radiological features of chronic ulcerative colitis.
28. Describe pathology, radiological and imaging features of gastric malignancies.
29. Discuss the role of radiology and imaging in a case of Blunt Abdominal Trauma.
30. Discuss the radiological approach in the evaluation of a vomiting infant.
31. Discuss role of radiology and imaging in diagnosis & management of Acute Abdomen in a child.
32. Describe in brief the pathology, role of imaging & radiological features in G.I tract lymphomas.
33. Discuss differential diagnosis and radiogical approach to a case of rt.iliac fossa mass.
34. Describe radiological appearances of G.I. Tuberculosis.
35. Discuss differential diagnosis and radiological approach to a case of small bowel strictures.
36. Discuss differential diagnosis and radiological approach to a case of large bowel stricture.
37. Discuss the role of radiology in the diagnosis of neonatal jaundice.
38. Discuss the role of imaging in cirrhosis.
39. Role of Radiologist and imaging in investigating a case of intestinal ischemia
40. Role of Radiologist in the diagnosis and management of islet cell tumours of the pancreas.
41. Role of CT in evaluation of acute abdomen resulting from gastrointestinal tract pathology.
42. Describe briefly the pathology role of imaging and radiological features in GIT lymphomas
43. Etiology and imaging features of Dysphagia in a 45 year old woman
44. Discuss portal hypertension and its radiological diagnosis and interventional therapy
45. Role of radiology and imaging in 8intestinal ischemia
46. Describe the anatomy biliary tree. Discuss the role of various radiological investigations for evaluating it in the present day practice

SHORT NOTES:

1. Choledochal cyst
2. Barium meal and ultrasonography in gastric malignancies
3. Budd chiari syndrome
4. Hiatus Hernia
5. Ultrasonography in jaundice.
6. Malignant tumors of colon.

7. Cystic neoplasms of liver
8. Cystic neoplasms of pancreas
9. Sialography
10. Dentigerous cyst
11. Mechanical small bowel obstruction
12. Imaging of acute pancreatitis
13. Tracheo oesophageal fistula
14. Enumerate pre malignant conditions of intestine.
15. Ulcerative colitis
16. Benign gastric tumors
17. Radio isotopes in Hepato biliary diseases
18. Ultrasonography in intestinal lesions
19. Double contrast study of colon
20. Anatomy and lesions of parapharyngeal space
21. Role of CT in G.I. malignancies
22. Ileocaecal tuberculosis
23. Ultrasonography in abdominal tuberculosis
26. Sonographic features in portal hypertension.
27. Radiology of Appendicitis
28. Anorectal anomalies.
29 Intestinal polyposis
31. Pheochromocytoma
32. Gastric ulcer
33. Achalasia cardia
34. Meconium ileus
35. Superior mesentric artery syndrome
36. Gastrointestinal manifestations of AIDS
37. Oesophageal Diverticuli.
38. Megacolon
39. Ultrasound in liver abscess
40. Pneumobilia
41. Presacral space
42. Splenic masses
43. Meckel's diverticulum
44. Malrotation of intestine
45. Biliary strictures
46. Intussusception
47. Oesophageal varices
48. Haemangioma of the liver
49. Neuro enteric cyst
50. Vascular indentation on the oesophagus
51. Gastric volvulus
52. Ulcerative colitis vs Crohn's Colitis
53. Lymphoma of the stomach

54. Pneumoperitoneum
55. Calcifications in the liver
56. Gastro oesophageal reflux
57. Benign vs malignant gastric ulcers on barium studies
58. Diverticular disease of the colon.
59. EUS in Easophageal Cancer.
60. Complications of peptic ulcer
61. Gastric leiomyoma
62. Duodenal tumours
63. Barium findings in coeliac disease
64. Normal ileocaecal valve and common lesions affecting this region
65. Hirschprung's disease
66. Intramural air in G.I.T.
67. Crohn's disease
68. Abdominal calcification in acute abdomen
69. Subphrenic abscess
70.. Imaging of hepatocellular Carcinoma
71. Imaging of Cholangio Carcinoma
72. Liver metastasis
73. Hepatic hydatid disease
74. Ultrasound in pancreatitis
75. Pancreatic pseudocyst
76. Biliary atresia
77. Congenital hypertrophic pyloric stenosis
78. Large intestinal obstruction
79. Sigmoid volvulus
80. Duodenal obstruction in a child
81. lecystitis
82. Development of pancreas and its developmental anomalies.
83. Gastro oesophageal junction.
84. Malignant tumours of colon
85. Cystic lesions of liver
84. Radiological features of gastric malignancy
86. Necrotising enterocolitis
87. Segmental anatomy of liver and its importance
88. Vascular complications of pancreatitis
89. Endocrine tumours of pancreas
90. Pathology of abdominal tuberculosis
91. Radiological features with diagrams in a case of hiatus hernia
92. Syndromes with GIT polyposis.
93. Radiology of acute and subacute obstructive lesions of GI tract
94. Mechanical small bowel obstructions – etiology and radiological findings
95. Describe mode of infection in GI tuberculosis and radiological features and differential diagnosis in colonic TB.

96. Retroperitoneal Fibrosis.
97. MRI in liver masses.
98 Hepatic masses of childhood.
99. Vascular lesions of small bowel.
100. Strictures of large gut
101. Small Bowel Malignancy
102. Pathology of gastric carcinoma
103. Diagnosis of intra abdominal fluid collections
104. Peutz-Jegher syndrome
105. Role of Angiography in lower G.I tract bleeding
106. Transjugular intrahepatic portosystemic shunt
107. Interventional Angiography in liver.
108. Gall stone ileus
109 . Adenomyomatosis of the gall bladder
110 Imaging in Acute cholecystitis and its complications
111. Mirizzi's syndrome
112. ERCP v/s MRCP in biliary imaging
113. Zollinger Ellison syndrome
114. Carcinoid tumours
115. Role of spiral CT in evaluation of liver neoplasms
116. Strictures of large gut
117. 99m Tc labeled N-substituted rhinodiacetic acid (HIDA) scan
118. Biliary interventions
119. Role of CT in splenic trauma
120. Imaging methods for evaluation of imperforate anus
121. Describe the role of angiography in lower GIT bleeding
122. Discuss the role of radiology in the diagnosis and management of a patient presenting with onstructive jaundice
123. Enumerate the premalignant conditions of the GIT. Describe RIP of chronc ulcerative colitis
124. Describe the technique and appearance of double contrast study of the upper GIT. Compare and contrast it with conventional single contrast study and endoscopy. Discuss the merits and demerits of the techniques
125. Cholecysti glandularis poroliferans
126. Caecal and sigmoid volvulus
127. Diagnostic techniques available for diagnosis of CBD strictures
128. Discuss the role of various imaging techniques in the evaluatkon and possible management of a patient with suspected liver trauma and its sequalae
129. Colonic diverticular disease
130. MRCP
131. Biliary interventions
132. Radiology and imaging of acute pancreatitis
133. Describe radiology of appendicitis
134. Usefulness of sonography in intestinal lesions

135. Double contrast study of the caecum and colon
136. Benign gastric tumours

RESPIRATORY SYSTEM

MAJOR QUESTIONS

1. Enumerate the causes of a cavitating lesions in the chest and discuss the different radiological features of each.
2. Classify mediastinal masses and briefly mention the imaging modalities that help in localisation and diagnosis of anterior mediastinal masses.
3. Enumerate the causes of acute respiratory distress in a new born child and discuss the plain x.ray findings.
4. Classify the tumors of the lung. Discuss the radiolgocial features of bronchogenic carcinoma with respect to plain radiographs and CT.
5. Enumerate the causes of haemoptysis. Discuss the chest radiograph and C.T. findings in pulmonary tuberculosis.
6. What are the causes of chronic obstructive airway disease. Describe the chest roentgenographic findings in different types of emphysema.
7. Discuss radiological features of collagen disorders in Chest x.ray with respect to i)Skeletal changes ii) Pulmonary changes
8. Enumerate occupational lung diseases.Describe plain radiographic and CT findings in Asbestosis.
9. Enumerate congenital lung diseases. Discuss the radiological appearances in chest x.ray of I) pulmonary agenesis ii) oesophageal lung
10. Discuss the anatomy of diaphragm and normal variation. Enumerate the causes of unilateral elevation of diaphragm.
11. Enumerate the posterior mediatinal masses.How will you approach a case of posterior mediastinal mass.
12. Discuss in detail the radiological manifestations of AIDS in chest with respect to intrapulmonary changes.
13. Describe the causes of lung collapse. Describe in brief the various conventional x.ray and CT findings of various collapses.
14. Describe the radiological manifestations of industrial lung disease.
15. Describe briefly the pathophysiology of pulmonary embolism. Give in detail the imaging modalities for diagnosis of this entity and its merits and demerits.
16. Lymphatic drainage of lung; role of plain radiography in a case of pulmonary edema.

17. Describe the advantages of Digital Radiography in chest over routine radiography.
18. Discuss the various lesions involving the ribs of the diagnostic features.
19. What is the importance of soft tissues in chest radiograph. Discuss various diagnostic features.
20. Discuss the radiological features of pulm. T.B.
21. Discuss the anatomy of pharynx & larynx.
22. Laryngeal tumors and role of C.T.
23. Discuss the anatomy of secondary pulmonary lobule on HRCT and its role in the diagnosis in interstitial lung disease.
24. Define emphysema. Enumerate the types and HRCT features of various types.
25. How would you investigate a solitary pulmonary nodule detected on Chest radiograph?
26. How would you investigate a hilar mass?
27. Discuss normal lung anatomy on HRCT. Enumerate the patterns of lung disease on HRCT and briefly discuss the differential diagnosis.
28. What is HRCT? Describe its techniques and its role in lung disease
29. Pulmonary embolism – evaluation by radiology and radio isotope
30. Classify congenital lung disease. Describe the appearances as seen by various radiological and other imaging modalities

SHORT NOTES

1. Wegener's granulomatosis
2. Thoracic manifestations of histocytosis
3. Lung changes in mitral stenosis
4. Radiological evaluation of post operative chest
5. Diagnosis of acute pulmonary infarction
6. Describe causes of unilateral opaque hemithorax with imaging features of pleural effusion.
7. Radiological features in chronic bronchitis
8. Ventillation perfusion studies by Radionuclide scanning
9. Pulmonary sarcoidosis
10. Differentiating features between intra and extra lobar sequestration
11. Fungus ball and its differential diagnosis.
12. Lymphangitis carcinomatosis
13. Fine needle aspiration of lung

14. Metastatic lung lesion
15. Pleural masses
16. Radiological anatomy of bronchopulmonary segments
17. Differential diagnosis of intrapulmonary calcification

18. Superior sulcus tumours
19. Infantile respiratory distress syndrome
20. Cystic lung disease
21. Bronchogenic cyst
22. Pneumomediastinum
23. Mc Leod's syndrome
24. Agenesis of lung
25. Alveolar Microlithiasis
26. Round atelectasis
27. Sub pulmonic effusion
28. Bilateral upper lobe fibrosis of the lung
29. Cystic adenomatoid malformations
30. Chylothorax
31. Scimitar syndrome
32. Congenital lobar emphysema
33. Mediastinal lymphnodes and lymphatic drainage of the lungs
34. Mediastinal lines
35. Diaphragmatic hernia
36. Pneumothorax
37. Thymic tumours
38. Neuroenteric cyst
39. Broncho alveolar carcinoma
40. Plain x.ray features of malignant solitary pulmonary nodule
41. Lung abscess
42. Pneumocystic carinii pneumonia
43. Hydatid cyst in lung
44. Bronchiectasis
45. Asbestosis
46. Pulmonary odema
47. Rheumatoid lung
48. Silicosis
49. Radiation pneumonitis
50. Coal workers pneumoconiosis.
51. Describe common bacterial pneumonias seen in adults
52. Describe the pathology and radiological findings in adult respiratory distress Syndrome.
53. Role of CT & MR in the diagnosis and management of bronchogenic carcinoma
54. Pulmonary alveolar proteinosis.
55. Bronchopulmonary aspergillosis
56. HRCT in interstitial lung disease
57. Pulmonary hamartoma.
58. Cystic mediastinal tumours
59. Aspergillosis
60. Alveolar proteinosis

61. Cystic fibrosis
62. Impaired defence mechanisms predisposing to recurrent chest infections
63. 63. Role f plain skiagram chest in the diagnosis of pulmonary hypertension
64. Role of imaging in bronchogenic carcinoma
65. Diagnosis of SPN
66. Superior sulcal tumours
67. Diagnosis of SPN
68. Superior sulcal tumours
69. HPOA
70. Imaging in opaque hemithorax
71. CT in Myasthenia Gravis
72. Pathology of pulomary hemartoma
73. Radiological features of collagen disorders as reflected in chest radiographs
74. Radiodiagnosis of anterior mediastinal masses
75. Describe the common bacterial pneumonias in adults
76. Describe the pathology and R/F in ARDS
77. FNAC of lung lesions
78. Pulmonary Sarcoidosis
79. Radiological evaluation of postoperative chest
80. Pleural mesothelioma
81. Classify the causes of pulmonary polethora and its distinctive features
82. Lung changes in systemic disorders
83. Injuries to lung
84. Pulmonary oedema
85. MRI in bronchogenic carcinoma

BASIC SCIENCES

MAJOR QUESTIONS

1. Classify the intravascular contrast media. What are the advantages of new generation of contrast media.grainger
2. Describe the X-ray tube with the help of a diagram. How are X-rays produced from an X-ray tube? christinsen
3. Describe in detail the constituent of developer and fixer and Explain how radiographic image is formed on a film.christinsen
4. What is an image intensifier? Draw a diagram and write in detail its construction and uses in Radiology.
5. Enumerate the factors affecting the radiographic quality. How will you improve the radiographic quality?
6. Describe the various types of films used in your Departments and their structure. Enumerate different film faults encountered in practice.
7. What is rectification? Discuss the solid state Rectifiers. How do you test the working of rectifier system?
8. What is maximum permissible dose? Describe the methods of radiation protection to the patient and to the staff in the Diagnostic Radiology Department.
9. Discuss the various methods of silver recovery from the waste hypo solutions.
10. Describe ionization and scintillation. How are these principles used in detection of radiation? Describe the scintillation detector in detail and explain how it helps in imaging organs in modern imaging techniques.

11. Describe in detail the structures and principle of intensifying and fluroscopic screens. Discuss their application in diagnostic radiology.
12. What is ultrasound? Describe in brief the construction of a phased array and a linear array scanner used in real time ultrasonography.
13. How do you plan an X-ray and imaging Department for a 350 bed superspeciality hospital.
14. How do you plan an X-ray and Imaging Department for a 750 bed general Hospital.
15. Describe the role of radionuclide scan in evaluating GIT lesions.
16. What is digital substraction angiography. Discuss its principle and advantages over conventional angiography system.
17. Discuss in detail the construction of a grid and explain how it helps in improving the radiographic quality.
18. Describe the electrical circuit of a standard X-ray machine giving the functioning of important components.
19. What are isotopes? What is the principle of SPECT scan? Mention the common applications of radionuclide isotopes in diagnostic radiology.
20. Describe the development of gut. Write in short the radiological appearances in malrotation of gut.
21. Write in detail radiographic techniques of the following (any four):
a) Temperomandibular Joints b) Optic foramen © Scaphoid bone (d) Skyline view of patella
e) Towne's view f) Schuller's view g) Transorbital view h)calcaneum i) Water's view (j) Scapulla, (k) base of skull (l) Sacro iliac joints
m) Acromio clavicular joint n) Intervertebral foramina (cervical).
22. Describe the radiological anatomy of petrous temporal bone. Describe the radiological techniques of examination of this bone.
23. Describe the anatomy of adrenal glands. Write an account of radiological and imaging techniques used in the diagnosis of the lesions of adrenal glands.
24. Write in details about the techniques, indications and contra indications of double contrast examination of stomach and duodenum and compare it with endoscopic examination.
25. Write in brief about the anatomy of paranasal sinuses and radiographic positions used to delineate it.
26. Discuss the anatomy of prostate gland and the techniques used in its evaluation.
27. Discuss the properties of X-rays and its harmful effects.
28. Discuss principles of CT and changes in technology over the years.
29. What are the harmful effects of ionising radiation and the steps taken to protect in Radoiology Department?
30. What are the principles of transformers? Discuss the various types of transformers and add a note on transformer losses.
31. Discuss the radiological anatomy and imaging of pharynx.
32. Discuss the radiological anatomy and imaging of base of skull
33. Discuss the radiological anatomy and imaging of orbit.

34. Discuss the anatomy of pancreas and role of imaging modalities in evaluating pancreatic masses.
35. What is DSA? Discuss the indications and limitations in the areas of head and neck.
36. What is HRCT? Describe its role and technique in lung diseases.
37. Describe basic construction of Xray tube and recent advances.
38. Factors affecting contrast of the image.
39. Factors affecting scattered radiation and methods to decrease scattered radiation.
40. Technical foundation of helical and multidetector CT. Discuss their current applications with examples.
41. Principles of PET and its role in the imaging evaluation in neoplastic and non neoplastic disease.
42. Radiological anatomy of larynx.
43. PACS? Discuss the components and implementation of PACS
44. Discuss the physical principles involved in 2D Doppler, colour Doppler and USG contrast agents in vascular imaging

BASIC SCIENCES
SHORT NOTES

1. Ultrasound transducers.
2. Xeroradiography
3. Digital Subtraction Angiography..
4. Nonscreen film
5. Film badge
6. Physical principles of CT scan
7. Rectification.
8. Describe the cross sectional details of the conventional x ray film and that of a one side coated imaging films
9. Mammography unit
10. Modern x.ray tube
11. X-ray grids
12. Film processor
13. Principles of colour doppler sonography
14. Intensifying screens
15. Radiation protection
16. Scattered radiation
17. Factors affecting CT image
18. Physical principles of image intensifiers
19. High K V technique in chest xray
20. Dark room safelight
21. Transcranial sonography

22. Focal point of X-ray tube (2)
23. Artifacts in radiographic film
24. Single phase and 3 phase X-ray equipment
25. Biological aspects of radiation
26. Characteristics curve of X-ray film
27. Attenuation of radiation
30. Auto transformer
28. Rare earth screens
29. Rotating anode(2)
30. Peizo electric effect
31. Larmour frequency
32. Co2 angiography
33. Radiological anatomy of sella
34. Thermoluminescent dosimeter
35. Compton effect
36. Splenoportovenogram
37. Anode heel effect(2)
38. Iohexol
39. Wedge filter
40. Paramagnetic contrast media
41. Full wave rectification
42. Replenisher
43. Foetal circulation
44. Macro radiography
45. Superior orbital fissure
46. Ultrasound in orbital disease
47. Mobile xray unit
48. Air gap technique
49. Distortion
50. Thermionic
51. Transformer
52. Film emulsion
53. Rheo
54. Gray Scale ultrasound imaging of neck
55. Sialography
56. CT angiography
57. Intensifying screens
58. MR angiography
59. Proton density weighted image
60. Imaging films
61. Dark room construction
62. Describe modern X-ray tube anode(2)
63. 99m Technetium DTPA
64. Technical parameters of X-ray equipment for fluoroscopic procedures.

65. Factors affecting quality of radiograph
66. Methods of evaluation of grid performance
67. Cross sectional labeled diagram of peritoneal spaces.
68. Name the various interactions of X-ray photons with matter and describe any two.
69. Principle of Doppler with color flow imaging.
70. Segmental anatomy of liver and its importance
71. Factors affecting image quality in computed tomography
72. Phosphors used in intensifying screens
73. Describe the cross sectional details of conventional X-ray film and that of a one sided coated imaging film.
74. Cross sectional anatomy of suprarenal level. Enumerate hormones secreted by zones of suprarenal glands.
75. Anatomy of the retroperitoneum
76. Anatomic variants of the gall bladder, biliary tract and hepatic artery
77. MR myelography
78. Describe in detail planning of ideal modern diagnostic angiographic vascular lab for diagnostic and interventional purposes
79. Discuss the meaning of ionic and non ionic contrast media, their merits and demerits(1)
80. Describe the cross sectional details of a conventional Xray film and that of a one side coated imaging film
81. Name the various interactions of xray photons with matter. Describe any two
82. Transducers used for cranial sonography
83. Stationery xray grids
84. Mission computed tomography
85. Advantages of Digital radiograph in chest over routine radiographs
86. Gradient echo imaging

RECENT ADVANCES

MAJOR QUESTIONS:

1. Discuss the role of high frequency ultrasound probe in clinical practice.
2. Discuss the contrast agents used in diagnostic ultrasound.
3. Briefly describe the term larmour frequency, T1 and T2 relaxation times. Explain the sequences of events and signal generation in a routine spin echo sequence.
4. Enumerate causes of exophthalmos. Discuss the differential diagnosis and radiological features of pulsating exophthalmos. What is the role of interventional radiology in pulsating exophthalmos.
5. List the various interventional radiological procedures in the biliary tract? Discuss the indications, contraindications, procedure and complications of percutaneous transhepatic biliary drainage.

6. Discuss the role of Digital substraction angiography in peripheral arterial disease.
7. Discuss the role of duplex doppler in the diagnosis of portal hypertension.
8. Describe the basic physical principles of spiral CT. Write about the clinical applications of spiral CT in evaluating the vascular system in the brain.
9. Describe the technique and clinical applications of radio isotope lung scanning.
10. What are the various modalities available to evaluate a male infertile patient. Discuss the role of ultrasound with doppler facility in evaluation of varicoceles
11. With the help of a flow diagram / algorithm explain how you would approach a case of lower gastrointenstinal tract bleed. Discuss the merits and demerits of radionuclide scan and angiography.
12. Describe the role of neurosonography in an infant with raised intracranial pressure.
13. Discuss the differential diagnosis of a focal hypoechoic lesion in liver and how you would proceed further to diagnose.
14. Discuss the indications, contraindications and the role of fallopian tube recanalisation in management of female infertility.
15. How would you approach a case of sellar/parasellar mass. Discuss the imaging features of craniopharyngioma.
16. What are the radiological features of an extrapleural chest wall mass? Discuss the differential diagnosis of a solitary lytic lesion of the rib.
17. Describe the MRI features of traumatic lesions of menisci and ligaments of knee joint.
18. Compare and contrast CT myelogram and conventional myelogram in spinal cord lesions. Discuss the differential diagnosis of intradural – extramedullary lesions in the spinal cord.
19. Discuss the radiological approach in a case of renovascular hypertension.
20. Discuss the technical considerations of High Resolution CT of lung. Briefly describe the role of High Resolution CT in interstitial lung disease.
21. Briefly discuss the role of CT scanning in craniospinal tuberculosis. Add a note on aetiopathogenesis.
22. Describe imaging features of HIV manifestation of CNS
23. Briefly discuss the role of CT in malignant renal tumours.
24. iscuss the differential diagnosis of an incidentally discovered breast lump and the different modes of investigations you will adopt to arrive at a provisional diagnosis.
25. Discuss the role of imaging in a patient with myocardial infarction.
26. Discuss the sequences used in MR cholangiogram and advantages of MRCP over PTC & ERCP.
27. Discuss the role of MR imaging in pelvic pathology and its advantages over other modalities.
28. Discuss the advantages of MR over CT in cerebral infarcts and role of intervention in the same.
29. Discuss the plain radiolographic features in ischaemic heart disease.
31. What is storage phosphor radiography. What are the current applications in Radiology

RECENT ADVANCES
SHORT NOTES

1. Spiral CT and its major applications
2. Radionuclide imaging of central nervous system.
3. Doppler versus MR angiography of carotid vessels
4. Intraoperative ultrasound
5. Intravenous Digital subtraction angiography.
6. Positron Emission Tomography
7. Transvaginal ultrasound
8. Describe the current trends in nuclear cardiology and its usefullness and limitations
9. Pharmaco angiography
10. Compare and contrast CT myelography and M.R.I.
11. Principles of MR angiography
12. Gradient echo imaging
13. PACS and film-less radiology practice.
14. Fast MR imaging techniques
15. MRI contrast media
16. Principles of Gamma camera
17. CT guided biopsy in the thorax
18. MRI spectroscopy
19. SPECT
20. Transvaginal color doppler sonography in the 1st trimester.
21. Role of scintigraphy in oesophageal motility disorders and gastro oesophageal reflux
22. Recent advances in prostate imaging
23. Balloon angioplasty in arterial disease
24. MR myelography
25. Doppler evaluation of the kidney
26. MR cholangiography
27. Role of doppler in ovarian masses.
28. Cine cardiac CT
29. Power doppler
30. Embolic agents and their clinical considerations
31. Signs of malignant and benign lesions on mammography
32. Ultrasonography in Hypertrophic pyloric stenosis
33. Role of Radio-nuclide scan in the biliary system
34. Fallopian tube recanalisation
35. Role of Doppler in obstetrics
36. Ultrasound in chest diseases.
37. Bronchial Artery Embolisation (BAE)

38. MR and Angiographic appearances of an infarct
39. Role of MR in assessing cranioverebral junction
40. MR imaging of various stages of intracranial haemorrhage.
41. Captopril renogram
42. Role of ultrasound and CT in renal transplantation
43. Contrast media reactions and management
44. Antenatal diagnosis of foetal upper GI abnormalities
45. Indications, contraindications, procedure of percutaneous nephrostomy
46. Precautions during radiological procedures in HIV positive cases.
47. Describe in detail planning of a ideal modern diagnostic angiographic vascular lab for diagnostic and interventional procedures
48. Describe the various types of sequences used in MR imaging, stressing the recent trends.
49. Principle of Doppler Ultrasound and its applications in neck ultrasound.
50. MRI in avascular necrosis of hip.
51. Intracavitary sonography.
52. Role of ultrasonic contrast agents in hepatic diseases.
53. 99 m technetium labeled nuclide scan.
54. Volume scanning with computer tomography.
55. Technical principles for mammography equipment.
56. MR mammography
57. Virtual endoscopy
58. Tissue harmonic imaging
59. MR arthrography direct v/s indirect
60. Sonohysterography
61. 3D USG
62. Musculoskeletal sonography
63. Multifrequency probes
64. USG contrast media
65. Internet in Radiology
66. Diffusion weighted MRI
67. CT fluroscopy
68. Intraoperative MR
69. Multislice spiral CT
70. High resolution Monitors (PACS)
71. Digital subtraction rotational angiography
72. Electron beam CT
73. Perfusion CT
74. Bone densitometry
76. Liver - specific Magnetic Resonance Imaging contrast media.
75. Role of multislice CT in abdominal imaging
76. Role of MRI in cirrhosis
77. TACE of hepatic neoplasms
78. Virtual colonoscopy

79. MR contrast agents in imaging of liver.
80. Functional MRI
81. Pulmonary angiography with MRI
82. Echoplanar imaging
83. MRA
84. Compare and contrast peripheral venography and Doppler sonography
85. Intraoperative ultrasound
86. Proton MR spectroscopy
87. Describe the various types of sequences used in MRImaging stressing the recent trends
88. Role of USG contrast agents in GIT diseases
89. Clinical application of MDCT
90.. Newer MR contrast agents