

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (RADIOLOGY) PART I (2015 PROSPECTUS) EXAMINATION -
DECEMBER 2019

ESSAY PAPER

Date: 6th December 2019

Time: 9.30 a.m. – 11.30 a.m.

Answer each question in a separate book.

Answer all questions.

Each question carries 100 marks.

PART A
RADIATION PHYSICS AND RADIATION PROTECTION

1.
 - 1.1. Briefly explain the scatter radiation production processes in diagnostic radiography and discuss their dependence on photon energy. (40 marks)
 - 1.2. List three techniques to reduce the production of scattered radiation in radiography. (15 marks)
 - 1.3. Briefly explain how the followings are reduced in diagnostic radiography.
 - (i) Geometric unsharpness (15 marks)
 - (ii) Motion unsharpness (15 marks)
 - (iii) Screen unsharpness (15 marks)
2.
 - 2.1. Describe the detector arrangement and method of obtaining different slice thicknesses in multi slice CT scanners. (50 marks)
 - 2.2. What is meant by a scanned projection radiograph?
Explain the data acquisition procedure used to obtain the scanned projection radiograph. (20 marks)
 - 2.3. Briefly describe the data acquisition, image reconstruction and image display procedure used in CT fluoroscopy. (30 marks)

PART B
ANATOMY, TECHNIQUES AND RADIOGRAPHY

1.

- 1.1. Enumerate the radiological imaging modalities to evaluate female genital tract and briefly mention the advantages of each. (20 marks)
- 1.2. Briefly describe the preparation, method and possible complications of Hysterosalpingogram (HSG). (40 marks)
- 1.3. Briefly describe the sonographic anatomy of an adult scrotum. (40 marks)

2.

- 2.1. Draw a labeled line diagram of an axial section through the left renal hilum as seen on CT scan. (40 marks)
- 2.2. 45 year old male presented to the surgical casualty ward with a history of right sided loin to groin pain and haematuria.
List the imaging modalities available for this patient. (10 marks)
- 2.3. Describe the protocol for CT IVU (Patient preparation is not necessary) (20 marks)
- 2.4. Describe the management of anaphylactic shock after intravenous contrast administration.(Details of advanced life support is not required) (30 marks)

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3.
 - 3.1. What is the methodology to assess the bone age of a six year old boy? (Specific time of appearance of carpal bone ossification centres are not required). (30 marks)
 - 3.2. 50 year old female has presented to the rheumatology department with morning stiffness and swelling of the small joints of the hands for one month duration. Enumerate the radiological imaging methods to evaluate small joints of the hands. (10 marks)
 - 3.3. Briefly describe the radiography of Ball catcher's view of the hands. (40 marks)
 - 3.4. What are the imaging modalities used to evaluate the parathyroid glands? (20 marks)
4.
 - 4.1. Briefly describe the CT adrenal protocol to evaluate an adrenal tumor in an adult patient. (20 marks)
 - 4.2. Briefly describe the anatomy of the coronary artery circulation. (50 marks)
 - 4.3. Write short notes on normal variations of branches of the aortic arch (you may use line diagrams). (30 marks)