Question Paper

Exam Date & Time: 11-Dec-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER BSc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2024
SUBJECT: MIT1301 - RADIATION PHYSICS
(2024 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Explain Characteristic Radiation and Bremsstrahlung Radiation.	(20)
2)	Explain the High-tension circuit with a diagram. Add a note on Earthing and its types.	(20)
3)	Define Grids. Explain the different types of grids.	(10)
4)	Define Filtration. Explain the different types of filtrations.	(10)
5A)	Explain Geometric magnification.	(5)
5B)	List the function of X-ray beam restrictors	(5)
5C)	Explain law of exponential attenuation.	(5)
5D)	Explain single-phase and poly-phase power supply	(5)
5E)	List the properties of X-ray	(5)
5F)	Explain battery-powered generators	(5)
6A)	Define Nuclides and its classification.	(2)
6B)	Define the Half value layer.	(2)
6C)	Define Grid ratio	(2)
6D)	Define Distortion.	(2)
6E)	Define penumbra	(2)

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Question Paper

Exam Date & Time: 13-Dec-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER BSc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2024
SUBJECT: MIT1302 - RADIOGRAPHIC POSITIONING AND TECHNIQUES - I
(2024 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Describe the indications, patient preparation, positioning, technical factors, criteria for evaluating the quality of the resulting radiograph, and the radiation protection methods to be used during the examination of the Anterior- Posterior, and Lateral projection of Humerus.	(20)
2)	Describe the indications, patient preparation, positioning, technical factors, criteria for evaluating the quality of the resulting radiograph, and the radiation protection methods to be used during the examination of the Anterior-Posterior and Lateral Elbow Joint.	(20)
3)	Describe the indications, technical factors, and criteria for evaluating the quality of the resulting Posterior Anterior scapula views radiograph.	(10)
4)	Describe the indications, technical factors, and criteria for evaluating the quality of the resulting radiograph of the AP shoulder.	(10)
5A)	Explain the step-wise process of positioning for the basic projection of PA wrist.	(5)
5B)	Explain the indications and patient preparation required for basic foot radiographic projections.	(5)
5C)	Explain the step-wise process of positioning for AP ankle joint projection.	(5)
5D)	Explain the step-wise process of positioning for AP leg radiography.	(5)
5E)	Explain the step-wise process of positioning for Anterior Posterior (weight bearing) knee joint projection.	(5)
5F)	Explain the image evaluation criteria for AP Femur.	(5)
6A)	List the Carpel bones.	(2)
6B)	Define the various exposure factors.	(2)
6C)	List the indications for chest radiography.	(2)
6D)	Outline the radiation protection method for shoulder.	(2)
6E)	List the indications for Forearm radiography.	(2)

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Question Paper

Exam Date & Time: 11-Dec-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER BSc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2024
SUBJECT: MIT1101 - RADIATION PHYSICS
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Define Grid. Explain the types of grids and the grid cutoff	(20)
2)	Explain in detail the principle and application of rectifiers in x-ray production	(20)
3)	Discuss in detail the interaction of x-rays with the matter using a diagram.	(10)
4)	Explain the construction of the X-ray tube.	(10)
5A)	Explain the Factors influencing the quantity of X-rays.	(5)
5B)	Explain the x-ray beam restrictors	(5)
5C)	Define Inherent and added filters. Add a note on their effect on the quality of the spectrum.	(5)
5D)	Explain the Bremsstrahlung radiation.	(5)
5E)	Draw and label the x-circuit	(5)
5F)	Explain electromagnetic spectrum	(5)
6A)	Define atomic structure	(2)
6B)	Define Alpha decay	(2)
6C)	Define anode heel effect	(2)
6D)	Define step-up and step-down transformer	(2)
6E)	Define Half value layer	(2)

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Question Paper

Exam Date & Time: 04-Dec-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER BSc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2024
SUBJECT: MIT1102 - RADIOGRAPHIC POSITIONING AND TECHNIQUES - I
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Describe the anatomy of Elbow joint. Explain in detail Jones method	(20)
2)	Describe the anatomy of Knee joint. Explain in detail Posterior Anterior axial(Camp Coventry method) .	(20)
3)	Discuss in detail Human Skeleton System.	(10)
4)	Discuss in detail the factors affecting the Radiographic Image quality	(10)

5. Discuss the followings in detail:

5A)	Tangential projection-supraspinatus outlet (Neer method)	(5)
5B)	Scapula Y Projection	(5)
5C)	Carpel bridge method of the wrist joint	(5)
5D)	Folio method of the thumb	(5)
5E)	Anterior Posterior weight bearing projection of the foot	(5)
5F)	Lateral Projection of the sternum	(5)

6. Explain in detail:

6A)	Contrast and Resolution	(2)
6B)	Technical exposure factors for Anterior Posterior projection of chest	(2)
6C)	Centring point for Fisk method	(2)
6D)	Circumduction	(2)
6E)	Supination and Pronation	(2)

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