May 2011

[KY 016] **Sub. Code: 4016**

M.Sc (MEDICAL PHYSICS) DEGREE EXAMINATION

(Revised Regulations for Candidates admitted from 2010-2011)

FIRST YEAR

Paper VI – PHYSICS OF MEDICAL IMAGING

Q.P. Code : 284016

Time : Three hours **Maximum :100marks**

Answer All questions.

I. Elaborate on : **(2 x 20 = 40)**

1. Describe a modern x-ray tube and its function with diagram
2. Describe the principle and function of a Magnetic resonance imaging system

II. Write notes on : **(10 x 6 = 60)**

1. Bremsrahhlung x-rays
2. Full wave rectifier
3. Role of filters in imaging
4. Intentifying screens
5. Digital radiography
6. Mammography
7. T1 & T2 weighted images
8. Doppler ultrasound
9. MRI artifacts
10. Quality Assurance of CT scanner

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[LA0512] **Sub. Code: 4016**

M.Sc. (MEDICAL PHYSICS) DEGREE EXAMINATION- MAY 2012

FIRST YEAR

PHYSICS OF MEDICAL IMAGING

Q. P. Code: 284016

Time: Three hours **Maximum: 100 Marks**

180 (Min) **Answer All Questions**

I. Elaborate on:	**Pages (Max)**	**Time (Max)**	**Marks (Max)**
1. Explain in detail about the methods of evaluating performance of a Grid.	17	40	20
2. Explain in detail about any five artifacts produced in magnetic resonance imaging.	17	40	20
II. Write Notes on:			
1. Write any two QA tests for CT a equipment.	4	10	6
2. What are the prime factors in radiography techniques and explain about the influence of prime factors on image quality.	4	10	6
3. Explain in detail about transducer.	4	10	6
4. Explain about thermionic emission and line focus principle.	4	10	6
5. Explain in detail about photoelectric effect.	4	10	6
6. What is filtration? Explain briefly about K-edge Molybdenum filters.	4	10	6
7. Explain in detail about principle of image formation on film.	4	10	6
8. Explain in detail about free induction decay.	4	10	6
9. Explain in detail about computed radiography.	4	10	6
10. Explain in detail about Modulation Transfer Function (MTF).	4	10	6

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[LC 0413] **APRIL 2013** **Sub. Code: 4016**

M.Sc (MEDICAL PHYSICS) DEGREE EXAMINATION

(Revised Regulations for Candidates admitted from 2010-2011)

FIRST YEAR

Paper VI – PHYSICS OF MEDICAL IMAGING

Q.P. Code : 284016

Time : Three hours **Maximum :100marks**

I. Elaborate on: **(2x20=40)**

1. (a) Explain the different methods which are used to overcome the limitation of projection radiography?

   (b) Draw the primary radiological image and explain the differential attenuation of X-rays in human body.
2. Write the different Quality Assurance tests which are used in evaluate the conventional X-ray Equipments.

II. Write notes on : **(10X6=60)**

1. Acoustic Coupling.
2. Grid Ratio
3. Intensifying screens.
4. Modulation Transfer Function.
5. Rotating influencing the radiographic contrast.
6. Quality Assurance in Computed Tomography.
7. MRI.
8. Beryllium Filters.
9. Digital radiography.
10. Automatic Brightness Control.

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[LD 1013] **OCTOBER 2013** **Sub. Code: 4016**

M.Sc (MEDICAL PHYSICS) DEGREE EXAMINATION

(Revised Regulations for Candidates admitted from 2010-2011)

FIRST YEAR

PAPER VI – PHYSICS OF MEDICAL IMAGING

Q.P. Code : 284016

Time : 3 hours **Maximum : 100 marks**

Answer ALL questions

I. Elaborate on : **(2X20=40)**

1. (a) With the help of neat sketch explain the construction of intensifying screens, and give the advantages of rare each screens compared to conventional screens.
   (b) Explain in detail about the interaction of X-ray with human body.

2. (a) Explain the various factors that influence the contrast and resolution
   (b) With the help of neat sketch explain the construction and working of modern rotating anode X-ray tube.

II. Write notes on: **(10X6=60)**

1. Rectifiers
2. Radiographic film
3. T1 and T2 relaxation time
4. Automatic exposure control
5. QA in Diagnostic X-Ray Equipments
6. Production and physical properties of ultrasound
7. Limitation of projection radiography
8. Filtration in radiography
9. Computerized radiography
10. Beam restrictors in radiography.

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