**[LN 1018]** OCTOBER 2018 **Sub. Code: 1801**

**M.Sc. RADIOLOGY AND IMAGING TECHNOLOGY EXAMS**
**FIRST YEAR**
**PAPER I – RADIOLOGICAL PHYSICS**

***Q.P. Code : 281801***

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

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

1. Write in detail about historical aspects and construction of the X-ray tubes, requirement of X-ray production, space charge, cathode assembly and X-ray production efficiency.

2. Types of interaction of ionizing radiation with matter-explain in detail about the interaction of gamma-ray with matter.

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

1. Write about linear energy transfer and energy relationship of X-ray with alpha & beta particles.
2. Explain the working principle of anode angulation and rotating tubes and line focus principle in X-rays.
3. Write in detail about photon flux and energy flux density in radiation.
4. Write about interlocking and X-ray tube overload protection.
5. Write in detail about the types of generators and working principle.
6. Explain about the relationship between the absorbed dose and equivalent dose.
7. Write in detail about the working mechanism and use of the thermo luminescent dosimeter.
8. Write about the working principle of computed tomography.
9. What are the requirements of X-ray production?
10. What are hard and soft X-rays and write about the added and inherent filtration?

*******

**[LO 0519]** MAY 2019 **Sub. Code: 1801**

**M.Sc. RADIOLOGY AND IMAGING TECHNOLOGY EXAMS**
**FIRST YEAR**
**PAPER I – RADIOLOGICAL PHYSICS**

***Q.P. Code : 281801***

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

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

1. Describe the various interactions of ionizing radiation with matter.
2. Principles of Radiation detection devices and discuss in detail about TLD.

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

1. Rotating anode.
2. Grid controlled X-ray tubes.
3. Radiation units for exposure.
4. Space charge effect.
5. Advances in X-ray tubes.
6. Hounsfield unit.
7. Factors influencing the quality and intensity of X-rays.
8. T1 and T2 relaxation.
9. Beam restrictor and collimator.
10. Basics of fluoroscopy.

*******

**[LP 1019]** OCTOBER 2019 **Sub. Code: 1801**

**M.Sc. RADIOLOGY AND IMAGING TECHNOLOGY EXAMS**
**FIRST YEAR**
**PAPER I – RADIOLOGICAL PHYSICS**

***Q.P. Code : 281801***

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

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

1. Describe in detail about Digital radiography for 500 bedded hospital and mention briefly the differences between computed and digital radiography.

2. What is scattered radiation, what is the significance in radiography and what are the methods to reduce it?

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

1. Characteristic X-rays.
2. PACS.
3. Radiation detection equipments.
4. Heel effect.
5. Focal spot.
6. Ultrasound transducer.
7. Basics of CT.
8. Dosimeters.
9. Free induction decay.
10. Heat dissipation methods in X-ray tube.

*******