

**B.Sc. RADIOLOGY IMAGING TECHNOLOGY**  
(New syllabus – 2014-2015)

**THIRD YEAR**

**PAPER III – QUALITY CONTROL, RADIOBIOLOGY AND RADIATION  
SAFETY IN RADIODIAGNOSIS / IMAGING**

*Q.P. Code: 801838*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Draw a neat diagram of a diagnostic X-ray room of 4 x 4.5 sqm with all safety measures. The number of patients per week is 600, the exposure parameters are 80k V and 20mAs for 2 films per patient. Calculate the workload and shielding for primary and secondary barrier assuming the room is located in a hospital setup. The weekly permissible scatter radiation dose at 1m is 0.1.
2. Describe in details the various steps to obtain registration of an X-ray machine with AERB.
3. Describe at least five main quality assurance procedures required for a CT scanner.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Collimator alignment test.
2. Ionisation chamber.
3. Deterministic effect.
4. Test for X-ray output reproducibility.
5. Good work practices in CT.
6. Area surveillance in a CT scanner room – with neat diagram of a CT room.
7. How to monitor radiation dose to patient in fluoroscopy and CT?
8. GM counter.

**III. Short answers on:**

**(10 x 3 = 30)**

1. KERMA
2. Survey meter.
3. MPD.
4. Inverse square law.
5. HVL.
6. Total filtration.
7. Contamination monitor.
8. TLD.
9. Equivalent dose.
10. Radioactivity.

\*\*\*\*\*