00928

B.Sc. IN MEDICAL IMAGING TECHNOLOGY

Term-End Examination

December, 2010

BAHI-031 : BASICS OF RADIOLOGICAL PHYSICS

Time : 3 hours   *Maximum Marks : 70*

PART - A

Answer *any five* questions. Each question carries
8 marks.   8x5=40

1. Explain how X-rays are produced and state the
    properties of X-rays ?

2. Discuss the functioning of full-wave rectifier
    circuit and explain how it is superior as compared
    to half-wave rectifier circuit ?

3. Explain exponential law and derive an expression
    for Half value layer thickness.

4. Define the following :

    (a)   Absorbed Dose.

    (b)   Dose Equivalent.

5. Discuss the different types of radiation dosimeters.

6. (a) Why personnel monitoring is necessary for a radiation worker ?

   (b) Describe in brief the functioning of TLD badge.

7. What is a transformer ? Explain the principle and operation of a step-up transformer.

8. Explain the different processes by which X-rays interacts with matter.

PART - B

9. Write short notes on *any five* of the following :

6x5=30

(a) Electromagnetic spectrum.

(b) Kirchhoff's law.

(c) Attenuation co-efficients.

(d) Filters

(e) Thermometers.

(f) Atomic Energy Regulatory Board (A.E.R.B).

(g) Artificial Radioactivity.

(h) Thermionic emission.

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