

**B.Sc. IN MEDICAL IMAGING
TECHNOLOGY**

**Term-End Examination
June, 2011**

BAHI-031 : BASICS OF RADIOLOGICAL PHYSICS

Time : 3 hours

Maximum Marks : 70

PART - A

Answer *any five* questions.

8x5=40

1. What is the principle of a transformer ? Explain the construction and working of a step - down transformer.
2. Write about the construction and operation of an x-ray tube with the help of suitable diagram.
3. (a) Define Radioactivity.
(b) Describe the properties of Alpha, Beta and gamma rays.
4. (a) Define Dose equivalent and mention its units.
(b) Describe the recent ICRP recommended dose limits for radiation worker and general public.

- (c) Explain in brief about the characteristics of shielding material for radiological protection.
- 5.
- (a) Explain the necessity of radiation survey during x-ray installation.
 - (b) Enlist the personnel monitoring devices and briefly describe any one device.
- 6.
- (a) Enlist the internal and external hazards of a radioactive material.
 - (b) Explain how we can control the radiation hazards from the radioactive sources.
7. Explain the different methods by which the radiation interacts with the matter.
- 8.
- (a) Explain the essential characteristics of a radiation dosimeter.
 - (b) Describe in brief the principles of radiation measurement.

PART - B

9. Write short note on *any five* of the following : **6x5=30**
- (a) Handling of radioactive sources.
 - (b) Filters in x-ray machine.
 - (c) Exponential law.
 - (d) Newtons law of cooling.
 - (e) Characteristic radiation
 - (f) Electromagnetic spectrum
 - (g) Thermionic emission
 - (h) Cathode of x - ray tube
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