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BAHI-043

B.Sc. in Radiation Therapy Technology (BRTT)

00954

Term-End Examination

June, 2013

BAHI-043 : RADIOBIOLOGY AND RADIATION PROTECTION

Time : 3 hours *Maximum Marks : 70*

PART - A

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

1. With the help of diagram explain the types of DNA breaks and chromosomal aberrations.

2. Explain the cell survival curve shape and the mechanism of cell death.

3. What are the radiation effects on Embryo and fetus ? Discuss the effects during pre-implantation, Organogenesis and the fetal stages.

4. Explain Linear Quadratic Model and discuss with example how it could be used to compare two regimens.

5. Define hereditary effects and somatic effects. Explain stochastic and deterministic effects and their relationship with dose.

6. What are radio sensitizer's ? Explain with example.

7. With a neat diagram explain the room design for a Low dose Brachytherapy unit.

8. What are the requirements of shielding materials ? Give three examples of shielding materials and their applications.

PART - B

9. Write short notes on *any five* of the following. Each carries six marks. 6x5=30

(a) Radiation effects on malignant cells

(b) Tumor Control Probability (TCP) and Normal Tissue Complication Probability (NTCP)

(c) The TDF model

(d) The Radiation dose limits

(e) The basic principles Radiation protection

(f) Linear Energy Transfer

(g) Tissue weighting factors and Effective dose

(h) Radiation Protection in LDR manual after loading technique