

B.Sc. in Radiation Therapy Technology (BRTT)

Term-End Examination

00684

December, 2014

**BAHI-043 : RADIOBIOLOGY AND RADIATION
PROTECTION**

Time : 3 hours

Maximum Marks : 70

Note : *There are two Parts, Part A and Part B. Part A consists of eight questions. Answer any five questions. Each question carries 8 marks. Part B consists of eight parts. Answer any five parts. Each part carries 6 marks.*

PART A

1. Explain about different stages of cell cycle and its radiation sensitivity. 8
2. Explain about 5 R's of Radiobiology. 8
3. Explain the concept of fractionation. 8
4. What are radio sensitizers and protectors ?
Explain in brief. 8
5. Explain about radiation effects on fetus. 8

6. Explain about workload, use factor, occupancy factor and distance in room shielding calculation. 8
7. Explain the dose limits for radiation workers, trainees and public. 8
8. Explain about radiation weighting factors and tissue weighting factors. 4+4=8

PART B

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

5×6=30

- (a) Stochastic and deterministic effect of radiation
 - (b) Radiation induced chromosomal aberrations
 - (c) Linear-quadratic model (LQ model)
 - (d) Concept of ALARA
 - (e) Radiation monitoring instruments
 - (f) QA to be performed in HDR brachytherapy while doing source exchange
 - (g) Personnel monitoring device
 - (h) Concept of time, distance and shielding in radiation protection
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