

**QP CODE: 304018**

**Reg. No.....**

**Third Year B.Sc MRT Degree Examinations March 2017**

**Radiological Protection and Statutory Aspects**

**Time: 3 Hours**

**Max Marks: 100**

- **Answer all questions**
- **Draw diagrams wherever necessary**

**Essays:**

**(3x10=30)**

1. Explain in detail about chromosomal aberrations.
2. Explain theory and working of the thermoluminescence dosimeter.
3. What are the categories for transport of radioactive materials. How are they classified. Explain in detail.

**Short notes:**

**(8x5=40)**

4. Acute and late effects of radiation
5. The four R's of radiobiology and explain each one. Is there a 5th R. If so, explain the same.
6. Internal amplification in gas filled detectors and the advantages of it.
7. Calculate the equivalent dose (HT) for a person exposed to 20mGy of 1 Mev neutron rays and 5mGy of alpha and 10 mGy of 6MV X-rays.
8. Annual effective dose limits as prescribed by the atomic energy regulatory board (AERB) for radiation worker, members of the public, pregnant radiation worker.
9. Periodical safety test in the linac installation.
10. Area monitor.
11. Radiation weighting factor and tissue weighting factor.

**Answer briefly:**

**(10x3=30)**

12. Dose limits for students and staff.
13. Survey meter.
14. Effects of radiation on DNA.
15. Oxygen enhancement ratio (OER).
16. Absorbed dose.
17. LET
18. Cell survival curve.
19. Records in radiotherapy related to safety.
20. LD 50.
21. Workload

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