



**RADIOTHERAPY**

**PAPER – IV**

RTH/D/14/41/IV

Time : 3 hours

Max. Marks : 100

**Important instructions:**

- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

1. Discuss the effects of radiation therapy on embryo and foetus. What is the maximum permissible dose to a pregnant female? What is the cut off dose when termination of pregnancy is advised after accidental radiation exposure? 6+2+2
2. What is alpha beta ratio in radiation biology? Discuss the concept of biological effective dose. 3+7
3. What is a hypoxic cell sensitizer? Enumerate them. What are the characteristics of an ideal radio sensitizer? 3+2+5
4. What is radiation bystander effect? Describe the various methods of biological dosimetry. 2+8
5. Discuss the motion management techniques used in modern radiotherapy. 10
6. Describe the pathology of radiation induced cataract. How best one can reduce dose to lens in conventional RT planning of carcinoma maxillary antrum. 5+5
7. Describe in detail acute radiation syndromes with reference to nomenclature, dose threshold and clinical effects. 3+2+5
8. Describe adjuvant therapy in carcinoma rectum T<sub>3</sub>N<sub>1</sub>M<sub>0</sub> post abdomino perineal resection. 10
9. Discuss the guidelines for treating a patient, with radiation therapy, who is having a cardiac pacemaker. 10
10. What do you understand by breast cancer gene signature? Discuss the role of mamma print in a patient of breast cancer. 2+8

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