

RADIOTHERAPY

PAPER-IV

Time: 3 hours
Max. Marks:100

RTH/D/19/41/IV

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.

Write short notes on:

- a) Describe in detail the cell cycle. 5+5
 - b) Describe the mechanisms of DNA repair.
- Discuss the GEC-ESTRO guidelines in practice. How does it differ from the previously used systems? 5+5
- a) What is meant by Therapeutic Ratio and Therapeutic Window? 2+4+4
 - b) Describe the chemical means of modifying the Therapeutic Ratio and Therapeutic Window.
 - c) Describe the physical means of modifying the Therapeutic Ratio and Therapeutic Window.
- a) Discuss the basis of immunotherapy. 4+3+3
 - b) Name the major types of immunotherapy.
 - c) Evidence to support the use of RT to promote immune mediated killing of an irradiated tumour.
- a) TACE. 2+2+2+2+2
 - b) EBUS.
 - c) Tumour markers in cancer management.
 - d) Screening for Breast Cancer.
 - e) Photodynamic therapy.
- Discuss the role of Total Body Irradiation as part of patients undergoing stem cell transplantation including indications, techniques and dose schedules. 10
- a) What is FLASH Radiotherapy? 5+5
 - b) Biological benefits of FLASH – RT.

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| 8. | Discuss errors in Radiotherapy with respect to: | 5+5 |
| | a) Commission and Omission. | |
| | b) Measure for reduction of these errors. | |
| 9. | a) Multileaf Collimators. | 2.5x4 |
| | b) Inverse Planning. | |
| | c) Gated Radiotherapy. | |
| | d) Virtual Simulation. | |
| 10. | a) Immunohistochemistry in cancer management. | 2.5x4 |
| | b) Tumour angiogenesis. | |
| | c) Triple phase scan for hepatic lesions. | |
| | d) EGFR. | |
