

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.
