

**RADIOTHERAPY****PAPER-IV**Time: 3 hours  
Max. Marks:100

RTH/J/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:**

1. a) Define metastasis of unknown origin(MUO). 2+3+5  
b) What are common manifestations of MUO?  
c) Management of MUO at various body sites.
2. a) Hyperthermia in malignancy. 5+5  
b) Tumour-lysis syndrome.
3. a) Draw a diagram showing different phases of cell cycle. 4+6  
b) Describe briefly the importance of these phases in relation to radiotherapy and chemotherapy.
4. Briefly describe their clinical relevance: 2.5x4  
a) Mitotic Index (MI)  
b) Labelling Index (LI)  
c) Growth fraction (GF)  
d) Potential doubling time (T<sub>pot</sub>)
5. a) Classify chemotherapeutic drugs in relation to different phases of cell cycle. Add a note on drug resistance. 4+6  
b) Describe the radiobiological mechanisms of radiation sensitization by chemotherapy drugs and enumerate the rationale in sequencing RT + CT.
6. a) Describe the rationale in screening for cancer. What is the importance of screening in general population? 6+4  
b) Which tumours are considered suitable for a screening program in our country? What are the recommendation for screening of breast cancer?
7. a) Define plating efficiency. 2+4+4  
b) Mechanism of cell killing by ionizing radiation.  
c) L-Q model.

**P.T.O.**

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8. a) Radiobiologic basis of fractionation. 2+2+6  
b) What will happen if total dose is given at a time?  
c) Acute, subacute and late toxicities of accidental whole body radiation exposure and its management.
9. a) WHO ladder for pain management. 4+3+3  
b) Basics of morphine prescription.  
c) Buprenorphine and fentanyl patch.
10. a) Role of PET-CT scan in Oncology, its principles, its benefit; 7+3  
limitations and its impact on radiotherapy planning.  
b) RECIST versus PERCIST criteria.

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