

RADIO THERAPY

PAPER – I

RTH/D/10/41/I

Time : 3 hours
Max. Marks : 100

Attempt all questions in order.
Each question carries 10 marks.

1. Enlist the modifiers of radiation and describe the mode of action and results of hyperthermia.
2. Classify etiological factors of cancer. Discuss the role of viruses in etiology of cancer.
3. What is Paris system of Interstitial Brachytherapy? What rules govern it and how is the dose calculated? Describe different methods of dose calculations.
4. What is cyber knife? Discuss in short its principles and indications for its use.
5. Write short note on Tumour volumes in RT planning of brain tumors only.
6. What are the advantages and disadvantages of three-D conformal radiotherapy? Give brief published evidence.
7. What is proton therapy? Give physical rationale and clinical application.
8. Discuss different options of treatment available for cancer cervix stage I B.
9. Describe the indications and techniques of total body irradiation.
10. What is randomized clinically controlled double blind trial? What are the methods to collect enormous follow up data for final analysis for such trials?

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PAPER – II

Time : 3 hours
Max. Marks : 100

RTH/D/10/41/II

Attempt all questions in order.
Each question carries 10 marks.

1. Draw and describe the volume and portals for irradiation of carcinoma of maxillary antrum.
2. What is elective para-aortic lymph node irradiation in carcinoma uterine cervix? Discuss advantages and disadvantages of this technique?
3. How organ preservation is done in carcinoma of supraglottic larynx?
4. Discuss role of taxenes as radiosensitizers. Give some references.
5. Discuss high dose chemotherapy in breast cancer. Discuss its advantages and disadvantages.
6. What is photo dynamic therapy? Discuss its components and applications.
7. What are the methods to enhance the effect of chemotherapeutic agents on tumour being treated by it?
8. Enumerate various chemotherapy regimens for PNET. Give full details of therapeutic regimen for Ewing's sarcoma.
9. Discuss chemotherapeutic regimens for epithelial ovarian cancers.
10. How do you justify re-emergence of radiotherapy in ovarian cancers?
Outline the most suitable radiation technique in ovarian cancers.

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PAPER – III

Time : 3 hours
Max. Marks : 100

RTH/D/10/41/III

**Attempt all questions in order.
Each question carries 10 marks.**

1. What are the methods and indications for radiofrequency ablation?
2. Enumerate sentinel node biopsy sites. What is the significance of doing sentinel lymph node biopsy in oncological management?
3. Justify role of intra-peritoneal chemotherapy, its biological basis and the malignancies that can be treated with it.
4. Strategies and infrastructure to manage febrile neutropenia.
5. What are Gliadel Wafers and why they are thought to be advantageous?
6. What is new with regards to radiation in breast conservation techniques in Carcinoma of breast?
7. Describe in brief the principles of PET-CT. Enumerate its role in oncological management with special reference to lymphomas.
8. What is tomotherapy? Discuss its principle and construction. How it differs from linac based arc therapy?
9. Write a short note on preventive oncology.
10. Enumerate radiation and chemotherapy toxicity modifiers. Discuss one of them in detail.

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PAPER – IV

Time : 3 hours

RTH/D/10/41/IV

Max. Marks : 100

**Attempt all questions in order.
Each question carries 10 marks.**

1. Discuss strategies of nutritional back-up for the patients receiving radiation, chemoradiation and high dose chemotherapy.
2. What are the current issues in normal tissue tolerance? Enumerate 15 sites and their radiation tolerance.
3. Enumerate oncological emergencies. What are the fundamentals of their management?
4. What are different dose rates used in brachytherapy? Describe biological basis of HDR and PDR brachytherapy and advantages & disadvantages of each.
5. Discuss survival analysis in oncology and discuss the merits and demerits of the methods used in the survival analysis.
6. Describe pathophysiology of radiotherapy and chemotherapy induced nausea/vomiting. Outline the management of this condition.
7. Discuss management of haematuria in patients who have received whole pelvic radiation in the past.
8. What is the significance of positioning and immobilization in radiation therapy? What are the steps in the process of patient set up and how to improve its accuracy?
9. Discuss principles of palliation. Describe stages involved in pain management of cancer.
10. Describe radio biological basis of fractionation. Discuss various altered fractionation regimens used in Radiotherapy.