

POST GRADUATE EXAMINATION, JANUARY-2025

MD - RADIATION ONCOLOGY
(PAPER ONE)**[Time allotted: Three hours]****[Max Marks: 100]**

Note: Attempt all questions
Illustrate with suitable diagrams.

- Q. 1.** Describe radiobiological basis of fractionation and describe various altered fractionation regimens used in radiotherapy. (20)
- Q. 2.** Describe anatomy of Nasopharynx and illustrate with the diagram. Discuss the pattern of lymphatic drainage and its implications on radiation treatment planning in treating carcinoma nasopharynx T₃N₁M₀. (20)
- Q. 3. Describe briefly:** (3 x 10 = 30)
- a. Medical linear accelerator with schematic diagram
 - b. What is Radioactivity? Derive the formula
$$N = N_0 e^{-\lambda t}$$
 - c. Relationship between linear energy transfer (LET) and the relative biological effectiveness (RBE) of Radiation.
- Q. 4. Write short notes on:** (5 x 6 = 30)
- a. Radiation associated cardiac toxicity
 - b. Wedge filters and compensators
 - c. Personal monitoring devices in radiotherapy
 - d. Difference between conventional simulator and CT-Simulator in Radiotherapy
 - e. Radiation induced DNA damage

X

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(PAPER TWO)****[Time allotted: Three hours]****[Max Marks: 100]**

Note: Attempt all questions
Illustrate with suitable diagrams.

- Q. 1.** What are the treatment options for treating 40 years lady with clinical T₁N₀M₀ infiltrating duct carcinoma of left breast? Discuss in detail treatment planning with radiation after BCS. **(20)**
- Q. 2.** Write TNM staging for glottic cancer. Describe in details a radiation treatment for early vocal cord (T₁N₀M₀). **(20)**
- Q. 3. Describe briefly:** **(3 x 10 = 30)**
- a. Non-surgical treatment options for early non-small cell lung cancer
 - b. Treatment of localized squamous cell carcinoma of anal cancer
 - c. Total Skin electron therapy
- Q. 4. Write short notes on:** **(5 x 6 = 30)**
- a. Role of Brachytherapy for localized prostate cancer
 - b. Revised FIGO staging for endometrial cancer
 - c. Imaging modalities in CNS tumors
 - d. SBRT in spinal cord metastasis
 - e. VMAT in radiotherapy treatment planning

X

POST GRADUATE EXAMINATION, JANUARY-2025**MD - RADIATION ONCOLOGY
(PAPER THREE)****[Time allotted: Three hours]****[Max Marks: 100]**

Note: Attempt all questions
Illustrate with suitable diagrams.

- Q. 1.** Classify Antimetabolites used in the management of cancer and their main therapeutic uses and major toxicities. **(20)**
- Q. 2.** Discuss the role of adjuvant chemotherapy in the management of stage -III right sided colon cancer. How will you follow up a patient with colon cancer treated with curative intent? **(20)**
- Q. 3. Describe briefly:** **(3 x 10 = 30)**
- a. Pathophysiology of Chemotherapy induced nausea and vomiting and its management
 - b. Pharmacological management of Cancer pain
 - c. Hypercalcemia in cancer patients and its management
- Q. 4. Write short notes on:** **(5 x 6 = 30)**
- a. Adjuvant chemo radiation in cancer stomach
 - b. Role of neo adjuvant chemotherapy in muscle invasive urinary bladder cancer
 - c. Radiation fibrosis syndrome
 - d. Cervical intraepithelial neoplasia
 - e. Lynch Syndrome

X

POST GRADUATE EXAMINATION, JANUARY-2025**MD - RADIATION ONCOLOGY
(PAPER FOUR)****[Time allotted: Three hours]****[Max Marks: 100]**

Note: Attempt all questions
Illustrate with suitable diagrams.

- Q. 1.** What is Angiogenesis? How does it lead to metastasis in cancer? Write briefly role of antiangiogenic agents in the treatment of cancer. (20)
- Q. 2.** Describe four-dimensional target delineation and its implication in the management while planning with radiotherapy. Discuss various approaches for respiratory gating. (20)
- Q. 3. Describe briefly:** (3 x 10 = 30)
- a. Maintenance Therapy for disease control strategies in the epithelial ovarian cancer.
 - b. Impact of Microsatellite instability on treatment in stage-II & stage-III Colon cancer.
 - c. Adaptive Radiation Therapy
- Q. 4. Write short notes on:** (5 x 6 = 30)
- a. HPV Vaccines
 - b. Forest Plot
 - c. Venous Thromboembolism in cancer
 - d. Breast cancer susceptibility genes
 - e. RAS Oncogene

X
