

**POST GRADUATE EXAMINATION, JUNE - 2021**

**MD RADIATION ONCOLOGY  
(PAPER ONE)**

**BASIC SCIENCES RELATED TO ONCOLOGY, RADIATION PHYSICS AND RADIOBIOLOGY**

**[Time allotted: Three hours]**

**[Max Marks: 100]**

**Note:** Attempt all questions  
Illustrate with suitable diagrams.

- Q. 1.** What WHO histological classification of testicular germ cell tumors? What are prognostic parameters in non-seminoma germ cell tumors and give prognostic stratification? **(20)**
- Q. 2.** Describe anatomy of larynx and illustrate with diagram. Discuss pattern of spread of cancer based on sub site involvement and its implication on radiation treatment planning. **(20)**
- Q. 3. Describe briefly:** **(3 x 10 = 30)**
- Medical linear accelerator with schematic diagram.
  - What are the principle and rules radiation protection as per ICRP-60.
  - Percentage depth dose, tissue air ration, tissue phantom ration and tissue maximum ration with formulate.
- Q. 4. Write short notes on:** **(5 x 6 = 30)**
- Radioactivity and decay constant
  - Oxygen effect and re-oxygenation
  - Cervical intraepithelial neoplasia
  - Wedge filters and compensators
  - Acute radiation syndrome

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**MD RADIATION ONCOLOGY  
(PAPER TWO)**

**PRINCIPLE AND PRACTICE OF RADIOTHERAPY**

**[Time allotted: Three hours]**

**[Max Marks: 100]**

**Note:** Attempt all questions  
Illustrate with suitable diagrams.

- Q. 1.** A 35 yrs. old lady presented with clinical T2N1M0 of right breast and T1N0M0 of left breast. Discuss the management. (20)
- Q. 2.** Discuss the management of carcinoma nasopharynx in 30 yrs. male presented with intracranial extension including the planning of radiation therapy in detail. (20)
- Q. 3. Describe briefly:** (3 x 10 = 30)
- a. Role of Radiotherapy in the management of Hodgkin's disease
  - b. Management of stage-I small cell lung cancer
  - c. Personal monitoring devices in radiotherapy
- Q. 4. Write short notes on:** (5 x 6 = 30)
- a. Craniospinal Radiotherapy
  - b. Electron therapy in mycosis fungoidis
  - c. Respiratory gating
  - d. HIPEC in Peritoneal Carcinomatosis
  - e. P-53 Gene

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**MD RADIATION ONCOLOGY**

**(PAPER THREE)**

**CHEMOTHERAPY, BIOLOGICAL THERAPY AND PALLIATIVE CARE**

**[Time allotted: Three hours]**

**[Max Marks: 100]**

**Note:** Attempt all questions  
Illustrate with suitable diagrams.

- Q. 1.** Describe the tyrosine kinase inhibitors and their role in treatment of Renal Cell Carcinoma. (20)
- Q. 2.** Discuss in detail the management of locally advanced carcinoma breast. (20)
- Q. 3. Describe briefly:** (3 x 10 = 30)
- a. Rationale of Concurrent chemoradiotherapy
  - b. Antiemetic regime for highly emetogenic chemotherapy
  - c. GIST
- Q. 4. Write short notes on:** (5 x 6 = 30)
- a. Trastuzumab
  - b. Taxanes
  - c. Rituximab
  - d. Agents used for hormonal manipulation in carcinoma breast
  - e. Novel drug delivery methods

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**MD RADIATION ONCOLOGY  
(PAPER FOUR)**

**RECENT ADVANCES IN RADIOTHERAPY AND ONCOLOGY**

**[Time allotted: Three hours]**

**[Max Marks: 100]**

**Note:** Attempt all questions  
Illustrate with suitable diagrams.

- Q. 1.** Discuss biological rationale for stereotactic body radiation therapy (SBRT) and what are its indications, doses, results and side effects. **(20)**
- Q. 2.** Discuss the management of motion in radiotherapy planning, treatment and delivery. **(20)**
- Q. 3. Describe briefly:** **(3 x 10 = 30)**
- a. Ablative therapy for localized Hepato cellular carcinoma
  - b. Cyber knife and its applications in management of cancer
  - c. Application of PET CT in radiation planning
- Q. 4. Write short notes on:** **(5 x 6 = 30)**
- a. Cone beam CT
  - b. Tumor angiogenesis and vascular endothelial growth factor (VEGF)
  - c. Adaptive radiotherapy
  - d. Immunotherapy as Radiation Sensitizer
  - e. Proton therapy in pediatric oncology

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