

April-1996

[AK 155]

M.D. DEGREE EXAMINATION.

Branch IX — Radiotherapy

(Revised Regulations)

Part II — Final

**Paper I — GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY**

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss the Time Dose Fractionation scheme in Radiotherapy and its clinical implications. (25)
2. Define Brachytherapy. Discuss the various intracavitary systems with their clinical significance. (25)
3. Write briefly on : (5 × 10 = 50)
 - (a) Radiation Protective agents.
 - (b) Sublethal Radiation damage.
 - (c) Mammalian cell survival curve.
 - (d) Hormones in cancer management.
 - (e) Thermography.

October-1996

PK 141

M.D. DEGREE EXAMINATION
Branch IX - Radio Therapy
(Revised Regulations)
Part II - Final

Paper I - GENERAL PRINCIPLES OF RADIO THERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY

Time: Three hours

Max.marks:100

Answer All Questions

1. Discuss the technical advantages and disadvantages of various radium substitutes used in current clinical practice. (25)
2. Discuss the evolution of Fractionation in Radiotherapy with an emphasis on Radiobiological considerations. (25)
3. Write briefly on:
 - (a) Hypoxic cell sensitizers
 - (b) Potentially lethal damage
 - (c) The cumulative radiation effect concept (CRE)
 - (d) Tumour markers in cancer management
 - (e) Mammography.

(5x10=50)

April-1997

MP 146

M.D. DEGREE EXAMINATION
Branch IX - Radio Therapy
(Revised Regulations)
Part II - Final

Paper I - GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY

Time: Three hours

Max.marks:100

1. What is beam modification? Describe various techniques of beam modification. (25)
2. Define Linear Energy Transfer. Describe LET for different types of radiation and the relation between GRR and LET. (25)
- 3 Write briefly on:
 - (a) Strandquist curve
 - (b) Electron therapy
 - (c) Tumour Lethal Dose
 - (d) In vitro cell survival curve
 - (e) Radiation sensitizers.

(5x10=50)

October-1997

MS 146

M.D. DEGREE EXAMINATION
Branch IX - Radio Therapy
(Revised Regulations)
Part II - Final

Paper I - GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY

Time: Three hours

Max. marks:100

Answer All Questions

1. What are the advantages of megavoltage therapy over orthovoltage machines? Describe the indications of Grenz rays. (25)
2. What is Relative Biological Effectiveness? How does it influence dose determination and fractionation in a given case? (25)
3. Write briefly on:
 - (a) Wedge Filters
 - (b) Percentage labelled mitosis technique
 - (c) Chromosomal aberrations
 - (d) Craniopharyngioma
 - (e) Sublethal damage.

(5x10=50)

M.D. DEGREE EXAMINATION
Branch IX - Radio Therapy
(Revised Regulations)

Part II - Final

Paper I - GENERAL PRINCIPLES OF RADIO
THERAPY INCLUDING RADIOBIOLOGY
AND ONCOLOGY

Time: Three hours

Max.marks:100

Answer All Questions

1. What is beam direction? What are the different methods of beam direction? Discuss any one in detail. (25)
2. What is brachytherapy? What are the different methods of practice of brachytherapy? Describe interstitial brachytherapy in detail. (25)
3. Write briefly on:
 - (a) Linear Accelerator - Principle and advantages
 - (b) Neutron therapy
 - (c) Oxygen effect
 - (d) Therapeutic ratio
 - (e) Radio biological basis of fractionation.

(5x10=50)

October-1998

[SM 153]

M.D. DEGREE EXAMINATION.

Branch IX --- Radio-Therapy

(Revised Regulations)

Part II --- Final

Paper I --- GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Describe the parameters of evaluation of Linear Accelerators. How do you choose a linac energy to suit to your centre practising Radiotherapy. (25)
2. What are beam shaping devices? Describe the features of a multi-leaf collimator. (25)
3. Write briefly on : (5 × 10 = 50)
 - (a) Alpha-Beta Ratio.
 - (b) Biological effective dose.
 - (c) Dose rate.
 - (d) Hyperfractionation.
 - (e) Rationale of concurrent RT-Chemo Protocols.

April-1999

[SG 153]

Sub. Code : 2035

M.D. DEGREE EXAMINATION

Branch IX — Radiotherapy

(Revised Regulations)

Part II — Final

Paper I — GENERAL PRINCIPLES OF
RADIOTHERAPY INCLUDING RADIOBIOLOGY AND
ONCOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss in detail the various interactions of radiation with matter and give the clinical implications of each, especially with respect to radiotherapy. (25)

2. A 40 years old male has a $T_1N_0M_0$ lesion on the lateral aspect of the anterior 2/3rd of the tongue. Describe the various treatment options available, with their merits and demerits. Describe in details the technique of interstitial implantation with detailed calculations for the patient. (25)

3. Write briefly on : (5 × 10 = 50)
 - (a) Cell survival curve
 - (b) Wedge filters
 - (c) Iridium 192
 - (d) Multileaf collimator
 - (e) Thermoluminescence Dosimetry.

October-1999

[KA 153]

Sub. Code : 2035

M.D. DEGREE EXAMINATION

(Revised Regulations)

Branch IX — Radiotherapy

Part II — Final

**Paper I — GENERAL PRINCIPLES OF
RADIOTHERAPY INCLUDING RADIOBIOLOGY AND
ONCOLOGY**

Time : Three hours , Maximum : 100 marks

Answer ALL questions.

1. Discuss Beam Direction in Radiotherapy. (25)
2. What is fractionation in radiotherapy? What is its biological basis? Give an outline of the concepts of NSD, TDF and the Linear Quadratic (LQ) approach and fractionation. (25)
3. Write briefly on : (5 × 10 = 50)
 - (a) Effects of irradiation of testes. What are the protective measures employed to reduce the injury to testes during radiotherapy?
 - (b) Therapeutic Ratio
 - (c) Radiosensitiser
 - (d) Tumour Suppressor Genes
 - (e) Prostate Cancer Screening.

April-2000

[KB 153]

Sub. Code : 2050

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch IX — Radiotherapy

Part II — Final

Paper I — GENERAL PRINCIPLES OF
RADIOTHERAPY INCLUDING RADIOBIOLOGY AND
ONCOLOGY

Time : Three hours .

Maximum : 100 marks

Answer ~~the~~ questions.

1. Discuss the evolution of fractionation in clinical radiotherapy. What are the various types of accelerated fractionations? Discuss the recent studies and their recommendations. (25)
2. Discuss the various after loading techniques used in the management of cancer uterine cervix and outline their biological basis. What is the technique that you would like to use for your patients at your centre? Give reasons. (25)
3. Write briefly on : (5 × 10 = 50)
 - (a) Preoperative radiotherapy
 - (b) Intra operative radiotherapy
 - (c) Post radiation myelopathy
 - (d) Stochastic and deterministic effects and exposure limits
 - (e) Fine needle aspiration cytology.

October-2000

[KC 153]

Sub. Code : 2050

M.D. DEGREE EXAMINATION

Branch IX — Radiotherapy

(Revised Regulations)

Part II — Final

Paper I — GENERAL PRINCIPLES OF RADIO
THERAPY INCLUDING RADIOBIOLOGY AND
ONCOLOGY

Time : Three hours :

Maximum : 100 marks

1. Discuss the rationale in combining irradiation with surgery in clinical oncological practice. (25)
2. How will you manage a case of cancer of uterine cervix STAGE I-B? What are the complications of pelvic irradiation and how will you manage them? (25)
3. Write briefly on : (5 × 10 = 50)
 - (a) Fractionation in Radiotherapy.
 - (b) Relative biological efficiency.
 - (c) Beam compensators in Radiotherapy.
 - (d) Population kinetics in tumours and its relevance in treatment.
 - (e) Xeroderma pigmentosum.