[KM 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

Theory: Two hours and

Theory: 80 marks

forty minutes

M.C.Q.: Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay:

 $(2 \times 15 = 30)$

- Discuss the influence of Anaemia in Cancer management. Discuss the role of Erythropoletin.
- (2) Give a diagrammatic representation of cell cycle. Give an example of a cell kinetic method to assess cell cycle time. What is the significance of recruitment? How does it effect the cell cycle?

II. Short notes :

 $(10 \times 5 = 50)$

- (a) Early and late sequelae of spinal cord irradiation.
- (b) Relationship between high LET Radiations and Oxygen dependence.
- (c) Overall treatment time and its clinical implications.
- (d) Therapeutic index and its clinical importance.
 - (e) LENT-SOMA.
 - (f) Clinical applications of Electron beams.
 - (g) Stage Migration.
 - (h) Concomitant Boost Radiotherapy.
 - (i) Boron-neutron capture therapy.
 - (j) A symmetric Jaws.

[KO 151]

Sub. Code: 2050

M.D. DEGREE EXAMINATION.

Branch IX - Radiotherapy

GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING RADIOBIOLOGY AND ONCOLOGY

Time: Three hours

Maximum: 100 marks

Theory: Two hours and

Theory: 80 marks

forty minutes

M.C.Q.: Twenty minutes

M.C.Q.: 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Long Essays :

 $(2 \times 15 = 30)$

- (1) What is the Biological basis of fractionation? Which radio biological factor is being targeted in concomitant boost radiation? Give a hypothetical basis for an ideal fractionation schedule.
- (2) Discuss the biological basis of combination of surgery and radiotherapy. Write in detail the role of post operative radiation therapy in Head and Neck cancers.

II. Short notes :

 $(10 \times 5 = 50)$

- (a) Merkel cell carcinoma
- (b) Altered fractionation
- (c) Total skin electron irradiation
- (d) Potential doubling time
- (e) The oxygen effect
- (f) Tumor control probability
- (g) Relative biologic efficiency
- (h) Tumor suppressor genes
- (i) Multi leaf collimation
- (j) Asymmetric collimator jaws.

[KP 151]

Sub. Code: 2050

M.D. DEGREE EXAMINATION.

Branch IX - Radiotherapy

Paper II — GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING RADIOBIOLOGY AND ONCOLOGY

Time: Three hours

Maximum: 100 marks

Theory: Two hours and

Theory: 80 marks

forty minutes

M.C.Q.: Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

- Essay :
- (1) Discuss organ preservation in cancer treatment. (20)
- (2) Describe physical characteristics of Electron beam. Mention the clinical application. (15)
 - (3) Role of imaging in radiotherapy Discuss.(15)
- II. Short notes:

 $(6 \times 5 = 30)$

- (a) Penumbra
- (b) Adjuvant therapy

- (c) Stereotactic Radiosurgery
- (d) I12
- (e) HDR Brachytherapy
- (f) Principles of mould therapy.

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Sub. Code: 2050

II. Short notes:

 $(6 \times 5 = 30)$

M.D. DEGREE EXAMINATION.

Branch IX - Radiotherapy

GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING RADIOBIOLOGY AND ONCOLOGY

Common to:

Part II — Final Paper I — (Old/New/Revised Regulations)

(Candidates admitted from 1988-89 onwards)

And

Paper II — (For candidates admitted from 2004–05 onwards)

Time: Three hours Maximum: 100 marks

Theory: Two hours and Theory: 80 marks

forty minutes

M.C.Q.: Twenty minutes M.C.Q.: 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

- L Essay:
- 1. Discuss combined modality treatment for cancer.

(20)

2. Discuss, the common oncological emergencies.

(15)

3. Describe cellular effects of radiation. (15)

- (a) Biological modifiers
- (b) Neoadjuvant chemotherapy
- (c) Accelerated fractionation
- (d) TNM staging
- (e) Radiation oopherectomy
- f) Hemibody irradiation.

[KR 147]

Sub. Code: 2043

M.D. DEGREE EXAMINATION.

Branch IX - Radiotherapy

Paper II — GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING RADIO BIOLOGY AND ONCOLOGY

(Candidates admitted from 2004-2005 onwards)

Time: Three hours

Maximum: 100 marks

Theory: Two hours and

Theory: 80 marks

forty minutes

M.C.Q.: Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams whenever necessary.

- I. Essay :
- Discuss on clinical manifestations of normal tissue damage. (20)

- What are the requirements of ideal brachytherapy source. Give a note on Cesium - 137 and Ir - 192 source.
- 3. Discuss on multidisciplinary approach in Oncology. (15)
- II. Short notes:

 $(6 \times 5 = 30)$

- (a) Chemo radiation.
- (b) ICRU 50.
- (c) Particle beams in radiotherapy.
- (d) Linear Quadratic model in Clinical practice.
- (e) WHO step ladder in pain management.
- (f) Adjuvent radiation.

MARCH 2008

[KS 141] Sub. Code: 2036

M.D. DEGREE EXAMINATION.

Branch IX — Radiotherapy

GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING RADIOBIOLOGY AND ONCOLOGY

Common to all Regulations

Q.P.Code: 202036

Time: Three hours Maximum: 100 marks

Answer ALL questions.

I. Essays: $(2 \times 20 = 40)$

- 1. Describe the acute and late effects following a course of curative radiotherapy to carcinoma cervix and how do you manage them. (20)
- 2. What is signal transduction? What is its role in oncology? (20)
- II. Short notes: $(10 \times 6 = 60)$
 - 1. Shrinking field radiotherapy.
 - 2. Sievert.
 - Cell Survival curves.
 - 4. Craniospinal irradiation.
 - 5. Premalignant lesions of oral cavity.
 - 6. Mammography
 - 7. Immobilisation devices.
 - 8. ¹³¹–I.
 - 9. Basal Cell Carcinoma.
 - 10. Effect of radiation in pregnancy.