

APRIL 2001

[KD 1518]

Sub. Code : 3026

DIPLOMA IN MEDICAL RADIOLOGY — THERAPY
EXAMINATION.

(New Regulations)

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

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Describe the management of Seminoma Testes.
(25)
 2. Principles of Hormone Therapy in Cancer
Breast — Describe. (25)
 3. Write short notes on : (5 × 10 = 50)
 - (a) Hyper Fractionation
 - (b) CA-125 and CEA
 - (c) Mammography in Ca Breast
 - (d) Gamma Knife
 - (e) I 131.
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NOVEMBER 2001

[KE 1518]

Sub. Code : 3026

DIPLOMA IN MEDICAL RADIOLOGY – THERAPY
EXAMINATION.

(New Regulations)

Paper II — GENERAL PRINCIPLES OF
RADIOTHERAPY INCLUDING RADIOBIOLOGY
AND ONCOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss about the whole body effects of irradiation and their management. (25)
 2. What are the stages of carcinoma of urinary bladder? Discuss the management of carcinoma of bladder. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Importance of cell-survival curve in Radiotherapy
 - (b) RBE as a function of LET
 - (c) Dose rate effects in tumors
 - (d) Four “R”s of radiobiology
 - (e) Radioprotectors.
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MARCH 2002

[KG 1518]

Sub. Code : 3026

**DIPLOMA IN MEDICAL RADIOLOGY – THERAPY
EXAMINATION.**

(New Regulations)

Part II

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

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss the rationale of combining various modalities of treatments in the management of malignant tumours. (25)
 2. Discuss the cell cycle and its relevance to radiotherapy and chemotherapy. (25)
 3. Write short notes on : (5 × 10 = 50)
 - (a) Oncogenes.
 - (b) Stereotactic X-knife.
 - (c) Pulsed Dose Rate (PDR).
 - (d) Integrated net working in Radiotherapy.
 - (e) Altered fractionation.
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SEPTEMBER 2002

[KH 1518]

Sub. Code : 3026

**DIPLOMA IN MEDICAL RADIOLOGY-THERAPY
EXAMINATION.**

(New Regulations)

**Paper II — GENERAL PRINCIPLES OF RADIO
THERAPY INCLUDING RADIOBIOLOGY
AND ONCOLOGY**

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

- 1. Analyse the importance of Time, Dose and Fractionation in Radiotherapy. (25)**
 - 2. What are the late effects of radiation? Discuss them in detail. (25)**
 - 3. Write briefly on : (5 × 10 = 50)**
 - (a) Classification and staging of testicular tumors**
 - (b) Radiation cataractogenesis**
 - (c) Growth kinetics of human tumors**
 - (d) OER as a function of LET**
 - (e) Different methods of heating in hyperthermia.**
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APRIL 2003

[KI 1518]

Sub. Code : 3026

**DIPLOMA IN MEDICAL RADIOLOGY
THERAPY EXAMINATION.**

(New Regulations)

**Paper I — GENERAL PRINCIPLES OF RADIO
THERAPY INCLUDING RADIO-BIOLOGY
AND ONCOLOGY**

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss the management of Carcinoma Nasopharynx. (25)
 2. Discuss the rationale of various fractionations in radiotherapy. (25)
 3. Write short notes on : (5 × 10 = 50)
 - (a) Strontium therapy
 - (b) Tumor markers
 - (c) Hyperthermia
 - (d) X-knife
 - (e) Osteo sarcoma.
-

OCTOBER 2003

[KJ 1518]

Sub. Code : 3026

**DIPLOMA IN MEDICAL RADIOLOGY
THERAPY EXAMINATION.**

(New Regulations)

Paper I — GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING RADIO-BIOLOGY AND ONCOLOGY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes	Theory : 80 marks
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M.C.Q. : Twenty minutes M.C.Q. : 20 marks

M.C.Q. must be answered **SEPARATELY** on the answer sheet provided as per the instructions given on the first page of M.C.Q. Booklet.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) Discuss the clinical applications of modern day Brachy therapy. Describe any one type in detail including the clinical situation used.

(2) Discuss the staging of Testicular Tumors. How do you manage seminomatous testicular tumors? Discuss both Radiotherapy and Chemotherapy.

II. Write short notes on : (10 × 5 = 50)

- (1) Cell survival curves.
- (2) Key Altered Fractionation in Radiotherapy.
- (3) Dose rate.
- (4) High LET radiations.
- (5) Post operative Radiotherapy.
- (6) Oxygen Effect.
- (7) Percentage depth dose.
- (8) Interstitial Brachytherapy of Breast.
- (9) Alkylating agents.
- (10) Neoadjuvant chemotherapy.

AUGUST 2004

[KL 1518]

Sub. Code : 3026

**DIPLOMA IN MEDICAL RADIOLOGY THERAPY
EXAMINATION.**

(New Regulations)

**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 diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) Describe the various tumours of Maxillary Antrum. Describe the Radio therapeutic management of Squamous Cell Ca Maxillary Antrum.

(2) Discuss the staging of Ovarian Cancer. Describe the Radio therapeutic treatment of Stage I Dysgerminoma ovary.

II. Write short notes on : (10 × 5 = 50)

- (a) Basal Cell Carcinoma.**
- (b) Linear Quadratic model.**
- (c) Medullary Carcinoma Thyroid.**
- (d) Sentinel Node Biopsy.**
- (e) Retinoblastoma.**
- (f) Electron Beam.**
- (g) Intensity Modulated Radiotherapy.**
- (h) Gamma Knife.**
- (i) Technetium 99 m.**
- (j) BEP (Bleomycin Etoposide Cis Platin) Chemotherapy.**

FEBRUARY 2005

[KM 1518]

Sub. Code : 3026

**DIPLOMA IN MEDICAL RADIOLOGY THERAPY
EXAMINATION.**

(New Regulations)

Part II

**Paper I — GENERAL PRINCIPLES OF
RADIOTHERAPY INCLUDING RADIO-BIOLOGY
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 × 15 = 30)

**(1) Discuss time, dose and fractionation factors
in Radiation therapy.**

**(2) What are the interactions of X or Gamma
rays with matter? Discuss in brief.**

II. Short notes :

(10 × 5 = 50)

- (a) Half Value Layer.**
- (b) Shielding blocks.**
- (c) Difference between X-Rays and Gamma Rays.**
- (d) Thimble Chamber.**
- (e) Radiosensitizers.**
- (f) Paris system.**
- (g) Integral dose.**
- (h) Percentage depth dose.**
- (i) Tissue compensator.**
- (j) Cesium 137.**

MARCH 2006

[KO 1518]

Sub. Code : 3028

**DIPLOMA IN MEDICAL RADIOLOGY THERAPY
EXAMINATION**

**GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY**

Time : Three hours

Maximum : 100 marks

**Theory : Two hours and
forty minutes**

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

- (1) Discuss the altered fractionation schedules.**
- (2) Discuss gone therapy.**

II. Short notes : (10 × 5 = 50)

- (a) Cyclotron.**
- (b) Penumbra**

- (c) Hyperthermia**
- (d) Stereotactic Radio Surgery.**
- (e) I^{125}**
- (f) Electron Beam therapy.**
- (g) Intra operative Radiation.**
- (h) Chart.**
- (i) Tumour Kinetics.**
- (j) NSD concept.**

MARCH 2007

[KQ 1518]

Sub. Code : 3026

**DIPLOMA IN MEDICAL RADIOLOGY THERAPY
EXAMINATION**

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

Common to

(Candidates admitted from 1993–94 onwards)

and

(Candidates admitted from 2004–05 onwards)

Time : Three hours

Maximum : 100 marks

**Theory : Two hours and
forty minutes**

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (1 × 20 = 20)

**1. Describe the interactions of radiation with matter
and its clinical applications.**

II. Essay : (2 × 15 = 30)

**2. Discuss the role of chemotherapy and chemo
irradiation in colorectal cancers.**

**3. Discuss Electron beam therapy and its clinical
applications.**

III. Short notes : (6 × 5 = 30)

(a) Acute effects of total body irradiation.

(b) Effect of radiation on the eye.

(c) Paclitaxol.

(d) Hyperfractionation.

(e) Apoptosis.

(f) Biologic effects of radiation.

MARCH 2008

[KS 1518]

Sub. Code : 3026

DIPLOMA IN MEDICAL RADIOLOGY THERAPY EXAMINATION.

Paper II — GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY

(Common to all regulations)

Q.P. Code : 343026

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

- I. Write essay on : (2 × 20 = 40)
1. Discuss the role of Neo Adjuvant and Concurrent Radiation in Cervical cancer. (20)
 2. Describe the planning and execution of Dog Leg field radiation in Seminoma Testis. (20)
- II. Write short notes on: (10 × 6 = 60)
1. Strandquists Curve
 2. Radioprotectors
 3. Biological Effective Dose
 4. Apoptosis
 5. Manchester Technique
 6. Endovascular Brachytherapy
 7. Tomotherapy
 8. Sublethal damage
 9. Surface moulds
 10. Iodine 125.
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September 2008

[KT 1518]

Sub. Code: 3026

**DIPLOMA IN MEDICAL RADIO THERAPY
EXAMINATION.**

**Paper II – GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY**

(Common to all candidates)

Q.P. Code : 343026

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions :

(2 X 20 = 40)

1. What is meant by OLIGODENDROGLIOMA and the approach to management – Discuss.
2. Describe RETINOBLASTOMA and its management.

II. Write short notes on :

(10 X 6 = 60)

1. Boost field.
 2. DNA (Deoxy Ribonucleic Acid).
 3. P 53 Gene.
 4. HDR Brachy.
 5. Mould therapy.
 6. Basal cell carcinoma – skin.
 7. Her 2 neu.
 8. Human papiloma virus.
 9. Hemibody Radiotherapy.
 10. Hypoxic sensitizers.
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MARCH -2009

[KU 1518]

Sub. Code: 3026

**DIPLOMA IN MEDICAL RADIO THERAPY
EXAMINATION.**

**Paper II – GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY**

(Common to all candidates)

Q.P. Code : 343026

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions : (2 X 20 = 40)

1. Discuss radiation response modulators with suitable examples and diagrams under the following heading:
 - a) Chemical radio sensitizers and protectors.
 - b) Biologic response modifiers.
2. List some of the clinical situations where radiochemotherapy has been more advantageous. Discuss the rationale and various techniques that can be followed in radiochemotherapy.

II. Write short notes on : (10 X 6 = 60)

1. Tumour volumes as per ICRU Report No.50.
2. Cellcycle specific chemotherapeutic drugs.
3. Discuss field matching with suitable examples.
4. Radio biologic rationale of Brachytherapy.
5. Intraoperative radiation therapy.
6. Drug resistance and the genetics involved in it.
7. Explain with graphs a) Radio sensitivity b) Radio curability
c) Radio resistant. d) Therapeutic ratio.
8. Which all cranial nerves get involved in a nasopharyngeal cancer. Discuss with diagrams.
9. Photodynamic therapy.
10. Hyperthermia.

September - 2009

[KV 1518]

Sub. Code: 3026

**DIPLOMA IN MEDICAL RADIO THERAPY
EXAMINATION.**

**Paper II – GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY
(Common to all candidates)**

Q.P. Code : 343026

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions : (2 X 20 = 40)

1. Discuss about the areas of multi pronged approach in oncology and its value.
2. Carcinoma cervix and radiotherapy – Discuss.

II. Write short notes on : (10 X 6 = 60)

1. Oxygen enhancement ratio.
2. Pain syndromes and therapy.
3. Acute radiation syndromes – (whole body radiation – humans).
4. Organs TD 5/5 tissue doses and morbidity.
5. Mycosis fungoides.
6. Plasma cell tumor.
7. Beta HCG.
8. Granulocyte colony stimulating factor.
9. Cell cycle and irradiation.
10. Iodine 131.

March 2010

[KW 1518]

Sub. Code: 3026

DIPLOMA IN MEDICAL RADIO THERAPY EXAMINATION

**GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY**

(Common to all candidates)

Q.P. Code : 343026

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary

Answer ALL questions

I. Essay questions :

(2 x 20 = 40)

1. Explain the various steps involved in three dimensional conformal radiation therapy planning. Explain with diagrams the types of DVH used in 3D CRT planning.
2. What is the basis of fractionation? What is conventional fractionation? Write briefly on altered fractionation and its clinical advantages. Explain linear-quadratic model in-fractionation.

II. Write short notes on :

(10 x 6 = 60)

1. Monoclonal antibodies in use in cancer treatment.
2. Febrile neutropenia with comment on G-CSF.
3. Mantle field and IFRT in management of Hodgkin's lymphoma.
4. Toxicities of Anthracycline use and ways to prevent it.
5. Phase III clinical trials.
6. Endovascular brachytherapy.
7. Chronic myeloid leukemia.
8. SIADH.
9. Benign lesions and radiotherapy.
10. Bisphosphonates.

September 2010

[KX 1518]

Sub. Code: 3026

**DIPLOMA IN MEDICAL RADIO THERAPY (D.M.R.T.)
EXAMINATION.**

**Part II-Paper I for Candidates admitted upto 2003-04 & Candidates admitted
from 2008-09 onwards**

And

Paper II for Candidates admitted from 2004-05 to 2007-08

**GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY**

Q.P. Code : 343026

Time : Three hours

Maximum : 100 marks

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions :

(2 X 20 = 40)

1. Discuss the biologic effects of radiation.
2. Discuss electron therapy.

II. Write short notes on :

(10 X 6 = 60)

1. Radiation cataract.
2. Hypoxic cell sensitizers.
3. Linear energy transfer.
4. Rectal morbidity.
5. Radio sensitizers.
6. Hemibody Radiotherapy.
7. Benign lesions and radiotherapy.
8. Cell cycle and irradiation.
9. Bloom Richardson grading in breast cancer.
10. Oncogenes and tumour suppressor genes.

APRIL 2011

[KY 1518]

Sub. Code: 3026

**DIPLOMA IN MEDICAL RADIO THERAPY (DMRT)
EXAMINATION**

**GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY**

Q.P. Code : 343026

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

	Pages (Max.)	Time (Max.)	Marks (Max.)
1. Discuss cell cycle and its relevance to radiotherapy.	11	35	15
2. Discuss management of Ewing's Sarcoma.	11	35	15

II. Write notes on :

1. Altered fractionation in Radiotherapy.	4	10	7
2. Radiation proctitis.	4	10	7
3. Interstitial Brachytherapy of Breast.	4	10	7
4. Retinoblastoma.	4	10	7
5. Basal cell carcinoma of skin.	4	10	7
6. Oxygen effect.	4	10	7
7. Craniopharyngioma.	4	10	7
8. Emergency irradiation.	4	10	7
9. Oncogenes and tumour suppressor genes.	4	10	7
10. Dose rate.	4	10	7

[LA 1518]

April 2012

Sub. Code: 3026

DIPLOMA IN MEDICAL RADIO THERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIOTHERAPY
INCLUDING RADIOBIOLOGY AND ONCOLOGY**

Q.P. Code : 343026

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on:

Pages (Max.)	Time (Max.)	Marks (Max.)
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- | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|
| 1. Describe the various methods of Radiotherapy applications in order to maximize the tumor dose and minimise the normal tissue dose and explain its radiobiological basis. | 16 | 35 | 15 |
| 2. Explain the different phases of cell cycle and interactions of the same with Radiotherapy, chemotherapy and hyperthermia. | 16 | 35 | 15 |

II. Write notes on :

- | | | | |
|----------------------------------------------------------------------|---|----|---|
| 1. Describe the Skin appendageal malignant tumors. | 4 | 10 | 7 |
| 2. Describe the Osteoblastic bone secondaries. | 4 | 10 | 7 |
| 3. Describe the management of Cancer of the Ethmoidal sinuses. | 4 | 10 | 7 |
| 4. Describe the management of Cancer Posterior third Tongue. | 4 | 10 | 7 |
| 5. Describe the management of Pancreatic Cancer. | 4 | 10 | 7 |
| 6. Describe the treatment of Squamous Cell carcinoma of the bladder. | 4 | 10 | 7 |
| 7. Describe Liver Secondaries and its management. | 4 | 10 | 7 |
| 8. Describe Metabolic complications of cancer and its treatment. | 4 | 10 | 7 |
| 9. Describe the Paraneoplastic Syndrome. | 4 | 10 | 7 |
| 10. Describe the guidelines of Cervical Cancer Screening. | 4 | 10 | 7 |

(LC 1518)

APRIL 2013

Sub. Code: 3026

DIPLOMA IN MEDICAL RADIO THERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING
RADIOBIOLOGY AND ONCOLOGY**

Q.P. Code : 343026

Time: Three Hours

Maximum: 100 marks

I. Elaborate on:

(2X15=30)

1. Discuss the radiobiology of altered fractionation
2. Discuss the role of Brachytherapy in Head and Neck Cancer

II. Write notes on:

(10X7=70)

1. Describe the application of Perineal Template
2. Describe the Chestwall radiation therapy in cancer breast
3. Describe the Management of nodes in cancer Penis
4. Describe the Basis of Oblique fields in Cancer Cervical Oesophagus
5. Describe the Ependymoma of the Spinal Cord
6. Describe the management of Ewings Sarcoma
7. Discuss the applications of Tumor Markers
8. Describe the Immobilisation in Radiation Therapy
9. Discuss Guidelines for treating Paedaetric Patients in Radiation
10. Describe the Ratinoale for treating Benign tumors with Radiation

[LE 1518]

APRIL 2014

Sub. Code: 3026

**DIPLOMA IN MEDICAL RADIO THERAPY (DMRT) EXAMINATION
GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING
RADIOBIOLOGY AND ONCOLOGY**

Q.P. Code :343026

Time : Three Hours

Maximum : 100 marks

I. Elaborate on:

(2X15=30)

1. Discuss the role of Brachytherapy in the management of Malignancy.
2. Describe the radiobiological basis of oxygen enhancement Ratio.

II. Write notes on:

(10X7=70)

1. Describe the treatment of Small Cell Lung Cancer.
2. Describe the management of Mediastinal mass.
3. Describe the Significance of tumor markers.
4. Describe the management of Bone Secondaries.
5. Describe the role of Radiation in Fibromatosis.
6. Describe the Management of recurrent Gliomas.
7. Describe the basis Chemoradiation.
8. Describe the Radioablation in cancer management.
9. Describe the Radiation Reactions in Pelvic cancers.
10. Describe the basis of Oblique Fields in radiation.
