

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.
-

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.
-

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.
-

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]

Sub. Code: 3026

April 2012

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 Time Marks
(Max.) (Max.) (Max.)**

- | | | | |
|---|----|----|----|
| 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 Rationale 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.

[LG 1518]

APRIL 2015

Sub. Code: 3026

DIPLOMA IN MEDICAL RADIO THERAPY (DMRT)

EXAMINATION

**GENERAL PRINCIPLES OF RADIO THERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P. Code : 343026

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the principles behind multi-modality treatment in cancer.
2. Discuss Electron therapy - physical aspects and its clinical applications.

II. Write notes on:

(10 x 7 = 70)

1. Bloom Richardson grading in breast cancer.
2. Linear energy transfer.
3. Late rectal complications and their management.
4. Biological basis for accelerated fractionation.
5. Biological Effective Dose (BED).
6. Role of tumor markers in management.
7. Intra operative radiotherapy.
8. Role of Radiation in Acute Lymphoblastic leukaemia.
9. Oncologic emergencies.
10. Linear Quadratic model.

DIPLOMA IN MEDICAL RADIO THERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIO THERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P.Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Mechanisms involved in Carcinogenesis.
2. Indications, Dose, Treatment methods and complications of Craniospinal Irradiation.

II. Write notes on:

(10 x 7 = 70)

1. Sensitization of Hypoxic Cells.
2. Radiotherapy after Breast Conserving Surgery.
3. Adjuvant radiotherapy for carcinoma endometrium.
4. Neoadjuvant radiotherapy in rectal cancer.
5. Parametrial boost in cervical cancer.
6. Late effects of cranial irradiation.
7. Radiation for osteosarcoma.
8. Immobilization for head and neck RT.
9. Radiation for Parotid Tumours.
10. Chemoradiotherapy in Locally Advanced Non-Small Cell Lung Cancer.

DIPLOMA IN MEDICAL RADIO THERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIO THERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P.Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Describe Hypo fractionated Radiotherapy and its Radiobiological basis.
2. Describe quality assurance procedures adopted in Radiotherapy practices - Treatment verification procedures in Linear Accelerator.

II. Write notes on:

(10 x 7 = 70)

1. Total body Radiation.
2. Hypoxic cell sensitizers.
3. Radiation cataract.
4. Cell cycle.
5. Skin sparing effect.
6. Radio Biological basis of LDR and HDR.
7. Management of glottis cancer in stage I.
8. Role of radiotherapy in parotid tumours.
9. Hyperthermia.
10. Oxygen enhancement ratio.

DIPLOMA IN MEDICAL RADIO THERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIO THERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P.Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Repair of Radiation Damage and the Dose-Rate Effect.
2. Brachytherapy in cervical cancer.

II. Write notes on:

(10 x 7 = 70)

1. Photodynamic Therapy.
2. Post Mastectomy Radiotherapy.
3. Adjuvant radiotherapy for oral cavity cancer.
4. Neoadjuvant chemoradiotherapy in rectal cancer.
5. Immobilization for craniospinal radiation.
6. Radiotherapy for pituitary adenoma.
7. Radiotherapy in Anaplastic Carcinoma of Thyroid.
8. Modifiers of radiation response.
9. Skin reactions during radiotherapy.
10. Trans Arterial Chemo-Embolization.

DIPLOMA IN MEDICAL RADIO THERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIO THERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P.Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the biological basis of concurrent chemo radiation with suitable examples.
2. Discuss merits and demerits of LDR Brachytherapy and HDR Brachytherapy.

II. Write notes on:

(10 x 7 = 70)

1. Oncogenes and tumour suppressor genes.
2. Benign lesions and radiotherapy.
3. Radio sensitizers.
4. Hemi body Radiotherapy.
5. Gamma Knife.
6. Adaptive Radiation therapy.
7. Postoperative Radiation therapy.
8. Radiation recall phenomenon.
9. Management of Brain stem glioma.
10. Role of radiotherapy in carcinoma penis.

DIPLOMA IN MEDICAL RADIO THERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIO THERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P. Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss Hypo fractionation and its clinical applications with advantage / disadvantages.
2. Discuss in detail Oxygen Enhancement Ratio and methods to overcome hypoxia.

II. Write notes on:

(10 x 7 = 70)

1. Radio protectors.
2. Oncogenes.
3. Null hypothesis.
4. p 53.
5. Accelerated fractionation.
6. EGFR modulators.
7. Field in field therapy.
8. Cranio spinal radiation.
9. HPV vaccination.
10. Cancer screening.

DIPLOMA IN MEDICAL RADIO THERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIO THERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P. Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Define stereotactic radiotherapy and stereotactic radiosurgery. What are the radiobiologic considerations in relation to above? Describe in brief radiosurgical techniques employed in treatment of tumor.
2. Describe the radiation treatment techniques available for a 9 year old boy diagnosed to have Craniopharyngioma. Explain the techniques briefly along with dose constraints of Organs at Risk (OAR).

II. Write notes on:

(10 x 7 = 70)

1. Risk stratification and seminoma and non-seminomatous testicular tumours.
2. Luminal classification of breast cancer and its significance in the management of breast cancer.
3. Discuss the rationale for chemoirradiation in carcinoma cervix.
4. Use of PET CT in radiotherapy planning.
5. Analyse the importance of Time, Distance and Fractionation in Radiotherapy.
6. Indications for radiotherapy in benign conditions. Discuss any one condition in detail with technique and radiotherapy prescription.
7. Discuss the indications for external beam radiotherapy and vaginal mold brachytherapy for carcinoma of endometrium.
8. Role of radiotherapy in carcinoma maxillary antrum. Discuss the radiation treatment and technique with suitable diagram.
9. Immunohistochemistry of malignant round cell tumour in making definite diagnosis.
10. Cyber knife.

DIPLOMA IN MEDICAL RADIOTHERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P. Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss various fractionation schedules and their clinical significance.
2. Discuss in detail Relative Biological Effectiveness and factors modifying the same.

II. Write notes on:

(10 x 7 = 70)

1. Oxygen Enhancement Ratio.
2. Dose volume histogram.
3. Treatment planning algorithms.
4. Hazard Ratio.
5. Meta analysis.
6. p 53 mutation.
7. Recist criteria.
8. Radio-iodine therapy.
9. Norton – Simon Hypothesis.
10. Molecular targets in cancer treatment.

(LQ 1518)

**AUGUST 2020
(MAY 2020 SESSION)**

Sub. Code: 3026

DIPLOMA IN MEDICAL RADIOTHERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P. Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss the Biological Basis of fractionation. Compare the various fractionation schedules, and discuss the radiobiological factor targeted in concomitant boost radiotherapy.
2. Discuss molecular pathophysiology of tumor.

II. Write notes on: **(10 x 7 = 70)**

1. Discuss management of cystisarcoma phylloides.
2. Discuss the vascular access in cancer treatment.
3. Short notes on radiation response modifiers.
4. Nominal Standard Dose (NSD) and Time Dose Fractionation (TDF).
5. Early and late sequelae of spinal cord irradiation.
6. SAD and SSD technique.
7. Clinical trials in oncology.
8. Oncogenes and tumor suppressor genes.
9. After loading technique in brachytherapy.
10. Pain management in oncology.

[LS 1518]

NOVEMBER 2020
(OCTOBER 2020 SESSION)

Sub. Code: 3026

DIPLOMA IN MEDICAL RADIOTHERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P. Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the biological basis of combining radiotherapy and surgery and discuss the management of T3N1M0 carcinoma Larynx in 45 year old male.
2. Discuss in detail the oncological emergencies.

II. Write notes on:

(10 x 7 = 70)

1. Boron Neutron capture theory.
2. Radiosensitivity and radiocurability.
3. Short notes on cancer immunotherapy.
4. Biology of metastasis.
5. Tumor markers.
6. Potential doubling time and biological equivalent dose.
7. Pre malignant lesions of oral cavity.
8. L.Q. model
9. Mamography.
10. Therapeutic index.

(DMRT 0721)

JULY 2021
(MAY 2021 SESSION)

Sub. Code: 3026

DIPLOMA IN MEDICAL RADIOTHERAPY (DMRT) EXAMINATION

**GENERAL PRINCIPLES OF RADIOTHERAPY INCLUDING
RADIO-BIOLOGY AND ONCOLOGY**

Q.P. Code: 343026

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. Describe the staging workup and management of early breast cancer in young patients.
2. Describe the management of a case of pituitary adenoma in a 30 year old female.

II. Write notes on: **(10 x 7 = 70)**

1. Management of malignant melanoma.
2. LDR versus HDR brachytherapy.
3. Lutetium therapy.
4. Sub lethal damage.
5. Intracavitary therapy in carcinoma uterine cervix.
6. Role of Radiotherapy in neuroblastoma.
7. Cell survival curve.
8. Oxygen enhancement ratio.
9. Cell cycle.
10. Management of low grade astrocytoma.
