

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0122]

**JANUARY 2022
(OCTOBER 2021 EXAM SESSION)**

Sub. Code: 2412

**M.Sc. RADIOTHERAPY TECHNOLOGY
SECOND YEAR (From 2019-2020 onwards)
PAPER II-MANAGEMENT OF MOTION, PATIENT CARE AND DATA IN
RADIOTHERAPY
Q.P. Code : 282412**

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Respiratory motion management techniques in Radiotherapy.
2. Scheduling Patient Appointment based on Conformal, IMRT, VMAT and gating treatment techniques.

II. Write notes on:

(10 x 6 = 60)

1. Managing reports in scheduling.
2. Cloud services in Radiotherapy data management.
3. Data transfer QA.
4. DICOM RT.
5. Errors encountered in daily use of Record and verification system.
6. 4DCT Imaging.
7. Mechanics of breathing.
8. KVCBCT and its use in patient set-up.
9. Limitations in radiotherapy due to tumor motion.
10. Effect of tumor motion on dose distribution.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0522]

MAY 2022

Sub. Code: 2412

**M.Sc. RADIOTHERAPY TECHNOLOGY
SECOND YEAR (From 2019-2020 onwards)
PAPER II-MANAGEMENT OF MOTION, PATIENT CARE AND DATA IN
RADIOTHERAPY
Q.P. Code : 282412**

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Respiratory gating methods.
2. Report of Task Group 201 of AAPM: Quality management of external beam therapy data transfer.

II. Write notes on:

(10 x 6 = 60)

1. 4DCT Imaging.
2. Problems of breathing motion.
3. MVCBCT and its use in patient set-up.
4. Tracking.
5. Effect of tumor motion on total dose distribution.
6. Managing conflicts in scheduling.
7. Data server and backup.
8. DICOMRT.
9. Errors encountered in daily use of R&V system.
10. Data retrieval and presentation.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1022]

OCTOBER 2022

Sub. Code: 2412

**M.Sc. RADIOTHERAPY TECHNOLOGY
SECOND YEAR (From 2019-2020 & 2020-2021 onwards)
PAPER II - MANAGEMENT OF MOTION, PATIENT CARE AND DATA IN
RADIOTHERAPY**

Q.P. Code : 282412

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Motion Management in Radiotherapy.
2. Task Group 142: Quality Assurance of Medical Accelerators.

II. Write notes on:

(10 x 6 = 60)

1. Respiratory gating.
2. Managing heavy workload of patients in Radiotherapy department by smooth scheduling of appointments.
3. KVCBCT and its use in patient setup.
4. Data retrieval for research in RT.
5. Steps in planning SBRT for a lung cancer patient.
6. Data transfer among various workstations in RT department.
7. Explain tracking with a suitable example.
8. Difference between inter-fraction and intra-fraction motion.
9. Causes of tumor motion and ways to decrease it.
10. Imaging and setup of vulnerable patients.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1023]

OCTOBER 2023

Sub. Code: 2412

**M.Sc. RADIOTHERAPY TECHNOLOGY
SECOND YEAR (From 2020-2021 onwards)
PAPER II - MANAGEMENT OF MOTION, PATIENT CARE AND DATA IN
RADIOTHERAPY**

Q.P. Code: 282412

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain in detail data transfer quality assurance in external beam radiotherapy.
2. Explain gating methods using external and internal markers in detail.

II. Write notes on:

(10 x 6 = 60)

1. Problems of breathing motion.
2. Data storage.
3. Effect of tumor motion on dose distribution.
4. Scheduling Patient for IMRT, VMAT and gating treatment techniques.
5. Errors encountered in daily use of Record and verification system.
6. Difference between interfraction and intrafraction.
7. Laser guard and Touch guard systems for patient safety.
8. Tumor tracking methods.
9. Active Breathing Control in Radiotherapy.
10. KVCBCT and its use in patient set-up.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1024]

OCTOBER 2024

Sub. Code: 2412

**M.Sc. RADIOTHERAPY TECHNOLOGY
SECOND YEAR (From 2020-2021 onwards)
PAPER II - MANAGEMENT OF MOTION, PATIENT CARE AND DATA IN
RADIOTHERAPY**

Q.P. Code: 282412

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain gating methods using external and internal markers in detail.
2. Explain in detail Patient data storage, data server, data backup, cloud services in data management and data retrieval for research.

II. Write notes on:

(10 x 6 = 60)

1. Laser guard and Touch guard systems for patient safety.
2. Limitations in radiotherapy due to tumor motion.
3. Managing conflicts in scheduling.
4. Mechanics of breathing.
5. kV-CBCT and its use in patient setup.
6. Scheduling Patient for IMRT, VMAT and gating treatment techniques.
7. Data transfer quality control.
8. Effect of tumor motion on total dose distribution.
9. Record and verification system.
10. Deep Inspiration breath hold and its role in Breast Radiotherapy.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1025]

OCTOBER 2025

Sub. Code: 2412

**M.Sc. RADIOTHERAPY TECHNOLOGY
SECOND YEAR (From 2020-2021 onwards)
PAPER II - MANAGEMENT OF MOTION, PATIENT CARE AND DATA IN
RADIOTHERAPY**

Q.P. Code: 282412

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain motion management strategies in thoracic and abdominal radiotherapy, including the use of gating and tracking systems.
2. Explain the importance of accurate and complete data in radiotherapy planning and treatment.

II. Write notes on:

(10 x 6 = 60)

1. Communication skills for RTTs in patient care.
2. Skin care advice for breast cancer patients receiving radiotherapy.
3. Cloud-based storage in RT data management.
4. Motion artifacts in 4DCT imaging.
5. How will you Address anxiety and claustrophobia in patients using immobilization masks?
6. Enumerate Immobilization devices for prostate radiotherapy.
7. Image registration errors and their impact on treatment accuracy.
8. Explain Incident learning systems in radiotherapy.
9. Nutritional guidance for patients undergoing head and neck radiotherapy.
10. Quality indicators in patient care services.
