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

[AHS 0122]   **JANUARY 2022**   **Sub. Code: 2412**
(OCTOBER 2021 EXAM SESSION)

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.

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[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.

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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.

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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.

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