

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

[AHS 0321]

MARCH 2021

Sub. Code: 2305

(OCTOBER 2020 EXAM SESSION)

M.Sc. NUCLEAR MEDICINE TECHNOLOGY

FIRST YEAR (From 2019-2020 onwards)

PAPER V – RADIATION BIOLOGY

Q.P. Code : 282305

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on:

(2 x 20 = 40)

1. What are the modifying agents and explain how each agent alters the biological effects of ionizing radiation.
2. Explain in detail about the Linear Quadratic Theory.

II. Write Short Notes on:

(10x6 = 60)

1. Molecular Composition of Human body.
2. Human Cell Cycle.
3. Deoxyribonucleic Acid (DNA).
4. Law of Bergonie & Tribondeau.
5. Radiation Effects on DNA.
6. Cell Survival Curve.
7. Radiation Induced Cancers.
8. Linear Energy Transfer (LET) & Relative Biological Effectiveness (RBE).
9. Biological Effects of Radiation.
10. Radiation Effects on Embryo.

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

[AHS 0921]

**SEPTEMBER 2021
(MAY 2021 EXAM SESSION)**

Sub. Code: 2305

**M.Sc. NUCLEAR MEDICINE TECHNOLOGY
FIRST YEAR (From 2019-2020 onwards)
PAPER V – RADIATION BIOLOGY
*Q.P. Code : 282305***

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on:

(2 x 20 = 40)

1. Explain in detail about Linear Quadratic Theory.
2. What are the effects of radiation effects. Explain in detail each effect with example.

II. Write Short Notes on:

(10x6 = 60)

1. Law of Bergonie & Tribondeau.
2. Radiation Effects on DNA.
3. Relationship between LET and RBE.
4. Annual Dose Equivalent Limits.
5. Molecular Composition of Human body.
6. Radiation Induced Radicals in water.
7. Radiation Effects on Embryo.
8. Cell Survival Curve.
9. Human Cell Cycle.
10. Chromosomal Aberration.

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

[AHS 0222]

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

Sub. Code: 2305

M.Sc. NUCLEAR MEDICINE TECHNOLOGY

FIRST YEAR

(Candidates admitted from 2019-2020 onwards – Paper V)

(Candidates admitted from 2020-2021 onwards – Paper VI)

PAPER V & VI – RADIATION BIOLOGY

Q.P. Code : 282305

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on:

(2 x 20 = 40)

1. What is the system of Radiation Protection. Explain how the radiation to the occupational worker can be minimized?
2. Explain in detail about the Time, Dose, Fractionation.

II. Write Short Notes on:

(10x6 = 60)

1. Radiation Induced Radicals in water.
2. Oxygen Enhancement Ratio (OER).
3. Human Cell Cycle.
4. Tissue Composition of Human body.
5. Law of Bergonie & Tribondeau.
6. Radiation Effects on DNA.
7. Radiation Effects on foetus.
8. Cell Survival Curve.
9. Annual Dose Equivalent Limits.
10. Biodosimetry.

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

[AHS 0522]

MAY 2022

Sub. Code: 2305

M.Sc. NUCLEAR MEDICINE TECHNOLOGY

FIRST YEAR

(Candidates admitted from 2019-2020 onwards – Paper V)

(Candidates admitted from 2020-2021 onwards – Paper VI)

PAPER V & VI – RADIATION BIOLOGY

Q.P. Code : 282305

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on:

(2 x 20 = 40)

1. What is the system of Radiation Protection. Explain how the radiation to the occupational worker can be minimized.
2. Explain in detail about the Time, Dose, Fractionation.

II. Write Short Notes on:

(10x6 = 60)

1. Radiation Induced Radicals in water.
2. Oxygen Enhancement Ratio (OER).
3. Human Cell Cycle.
4. Tissue Composition of Human body.
5. Law of Bergonie & Tribondeau.
6. Radiation Effects on DNA.
7. Radiation Effects on foetus.
8. Cell Survival Curve.
9. Annual Dose Equivalent Limits.
10. Biodosimetry.

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

[AHS 0523]

MAY 2023

Sub. Code: 2305

M.Sc. NUCLEAR MEDICINE TECHNOLOGY

FIRST YEAR

(Candidates admitted from 2020-2021 onwards)

PAPER VI – RADIATION BIOLOGY

Q.P. Code: 282305

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on:

(2 x 20 = 40)

1. Define Linear Quadratic model. Write an essay on models in radiobiology.
2. Explain Radiation protection. How the radiation to the occupational worker to be minimised?

II. Write Short Notes on:

(10x6 = 60)

1. High LET radiation.
2. Radiation Effects on DNA.
3. Direct and indirect action of ionizing radiation.
4. Tissue composition of human body.
5. Cell metabolism.
6. Radiation carcinogenesis.
7. Target theory.
8. Tissue tolerance dose.
9. Oxygen Enhancement Ratio (OER).
10. Biodosimetry.
