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

[AHS 0321] MARCH 2021 Sub. Code: 2303

(OCTOBER 2020 EXAM SESSION)

M.Sc. NUCLEAR MEDICINE TECHNOLOGY

FIRST YEAR (From 2019-2020 onwards)

PAPER III – MATHEMATICS AND STATISTIC

Q.P. Code : 282303

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Fourier Transform and its application in nuclear medicine
2. a) Explain in detail about types of data with example.

   b) What are the graphical representation of a complex number?

II. Write Short Notes on: **(10x6 = 60)**

1. Explain about paired t test with example.
2. Methods of Reconstruction.
3. Explain the concept of correlation and regression.
4. Methods of attenuation correction.
5. Explain simple back projection
6. Find the square root of 1+i.
7. State the power rule of differentiation with an example.
8. Explain mean, median and mode with example.
9. What is the relationship between polar and Cartesian coordinate system?
10. Explain Mann Whitney U test.

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

[AHS 0921] **SEPTEMBER 2021** **Sub. Code: 2303**
(MAY 2021 EXAM SESSION)

M.Sc. NUCLEAR MEDICINE TECHNOLOGY
FIRST YEAR (From 2019-2020 onwards)
PAPER III – MATHEMATICS AND STATISTIC
Q.P. Code : 282303

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Explain in detail about parametric and non-parametric test with an example and write its application.
2. a) Fourier Transform and its application in nuclear medicine
   b) What are most commonly used discrete functions in nuclear medicine?

II. Write Short Notes on: **(10x6 = 60)**

1. Application of statistics in medical field.
2. Write a short note on normal distribution with example.
3. Explain analysis of variance.
4. What are the graphical representation of a complex number?
5. Methods of attenuation correction.
6. Explain confidence intervals with example.
7. What is coordinate system?
8. Write a short note on Laplace transform and its application in nuclear medicine
9. Discuss about Null hypothesis, alternative hypothesis and level of significance.
10. Explain continuous functions in nuclear medicine.

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

[AHS 0222] **FEBRUARY 2022** **Sub. Code: 2303**
(OCTOBER 2021 EXAM SESSION)

M.Sc. NUCLEAR MEDICINE TECHNOLOGY
FIRST YEAR
(Candidates admitted from 2019-2020 onwards – Paper III)
(Candidates admitted from 2020-2021 onwards – Paper IV)
PAPER III & IV – MATHEMATICS AND STATISTIC
Q.P. Code : 282303

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Describe the uses of student-t-tests with examples.
2. a) What is the medical decision making and principle of receiver operating Characteristic (ROC)?
   b) Explain in detail about types of data with example.

II. Write Short Notes on: **(10x6 = 60)**

1. Explain about normal distribution with example.
2. What are most commonly used continuous functions in nuclear medicine?
3. What are the methods used to describe dispersion of data.
4. Explain the concept of correlation with example.
5. Explain coordinate system and its types.
6. Explain Mann Whitney U test .
7. Explain Chi-square test.
8. Explain mean, median and mode with example.
9. Methods of least square fitting.
10. Explain parametric functions.

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

[AHS 0522] **MAY 2022** **Sub. Code: 2303**

M.Sc. NUCLEAR MEDICINE TECHNOLOGY
FIRST YEAR
(Candidates admitted from 2019-2020 onwards – Paper III)
(Candidates admitted from 2020-2021 onwards – Paper IV)
PAPER III & IV – MATHEMATICS AND STATISTIC
Q.P. Code : 282303

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Describe the uses of student-t-tests with examples.

2. a) What is the medical decision making and principle of receiver operating Characteristic (ROC)?
   b) Fourier Transform and its application in nuclear medicine.

II. Write Short Notes on: **(10x6 = 60)**

1. Explain about normal distribution with example.
2. What are most commonly used continuous functions in nuclear medicine?
3. What are the methods used to describe dispersion of data.
4. Explain the concept of correlation with example.
5. Explain coordinate system and its types.
6. Explain about simple back projection.
7. Explain Chi-square test.
8. Explain about filtered back projection.
9. Methods of least square fitting.
10. Explain parametric functions.

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