

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

[AHS 0122]

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

Sub. Code: 2314

**M.Sc. NUCLEAR MEDICINE TECHNOLOGY
SECOND YEAR (From 2019-2020 onwards)
PAPER IV – QUALITY CONTROL OF NUCLEAR MEDICINE EQUIPMENT
*Q.P. Code : 282314***

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

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

1. Enumerate the importance of quality assurance of nuclear medicine instruments. List the quality assurance tests carried out for planar gamma camera.
2. Enumerate the various acceptance tests during installation of PET CT scanner. What are the routine quality assurance procedures for PET CT scanners?

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

1. What is the Isotope Calibrator's linearity? Mention how important it is in routine radiopharmaceutical dose measurements. What are the various ways, and how do you go about determining linearity?
2. In a SPECT gamma camera, what is the center of rotation (COR)? How do you go about correcting the COR?
3. What is the difference between pincushion and barrel distortion? How do you correct it?
4. What is the Jaszczak SPECT Phantom and how does it help in the SPECT gamma camera quality assurance?
5. Explain why the iso-response curve is important for the flat field collimator used in thyroid uptake probes.
6. Give a brief overview of the various Recliner Scanner acceptance and reference tests.
7. What is the difference between counting device's precision and accuracy? How do you determine the accuracy?
8. What you understand by energy linearity of well counter? What is the procedure for performing an energy linearity test?
9. What exactly is the sample volume effect? Why is it significant? Write down the procedure to find sample volume effect.
10. What you understand by preventive maintenance? Describe the different preventative maintenance practices followed in nuclear medicine.
