



SNS COLLEGE OF ALLIED HEALTH SCIENCES- COIMBATORE 35



DEPARTMENT : RADIOGRAPHY AND IMAGNG TECHNOLOGY

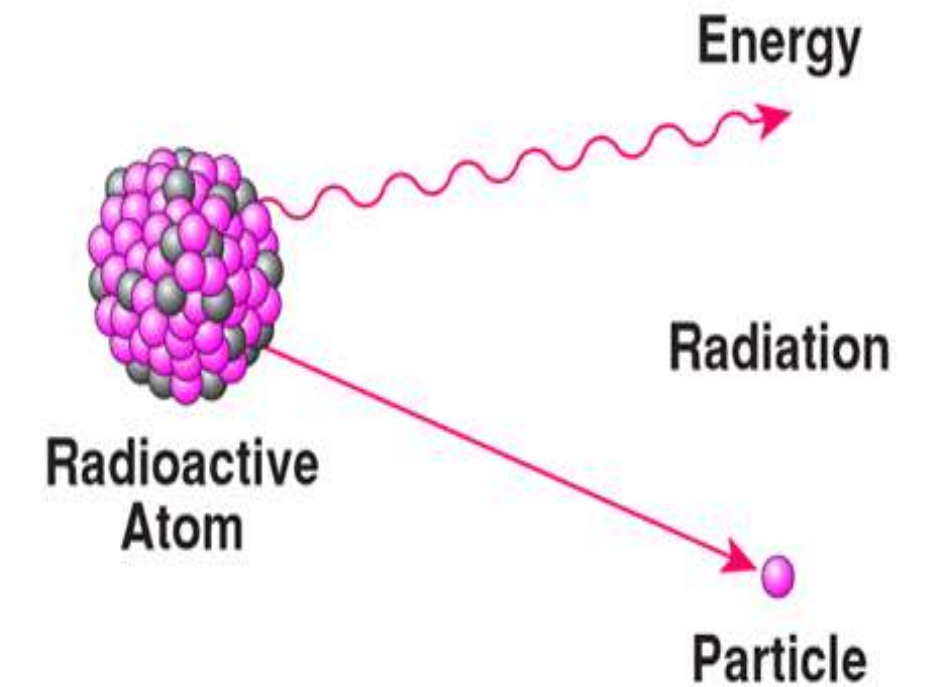
**SUBJECT : GENERAL PHYSICS, RADIATION PHYSICS AND PHYSICS OF
DIAGNOSTIC RADIOLOGY**

PAPER : PAPER II

**TOPIC : 1. RADIOACTIVITY
2. EXPOSURE
3. EXPOSURE RATE CONSTANT**

RADIOACTIVITY

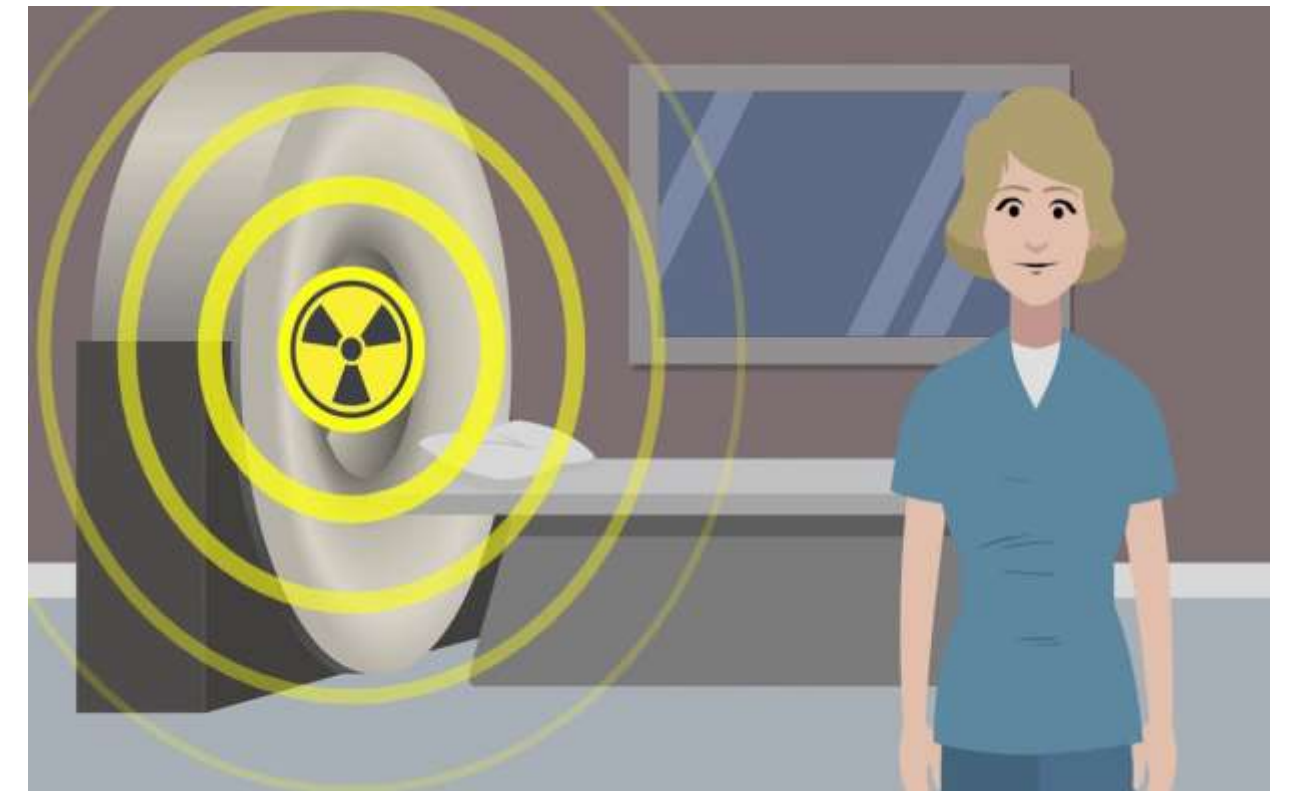
- The radioactivity refers amount of ionizing radiation released by n material whereas it emits alpha, beta, and gamma rays. And X-ray or neutrons.
- A quantity of radioactivity material expressed in terms of radioactivity.
- It represents how many atoms in the material decay in given time period.
- **UNITS – curie (Ci) , Becquerel (Bq).**



EXPOSURE

- Exposure describes the amount of radiation travelling through the air. Many types of radiation monitors measures exposures.
- $1 \text{ R} = 2.58 \times 10^{-4} \text{ C / Kg in Air}$
- **UNITS : (I) coulomb / kilogram (C / Kg)**

(II) Roentgen (R)



EXPOSURE RATE CONSTANT

- It is defined as the exposure per hour from 1 mCi point source at a distance of 1cm and it is expressed in

$$R - \text{Cm}^2 / \text{mCi-hour}$$

- For Example, Exposure rate constant of,
cobalt-13.7, Cesium- 3.26, Iridium – 4.69



ROENTGEN HOUR METER

- If the exposure rate constant is defined for 1 mCi point source at a distance of 1m then it is called RHM
- If the exposure defined as the, **exposure per hour** from 1mCi point source at a distance of 1m and it is expressed in **$R\text{-m}^2 / \text{mCi-hour}$** .



ROENTGEN MINUTE METER

- It is defined as the, **exposure per minute** from 1mCi point source at a distance of 1m and it is expressed in **R- m² / mCi-minute**.





INTERROGATIONS

1. It's true that radiation travels in medium or without medium ?!
2. What is radioactivity ?
3. Explain Exposure
4. What is Exposure rate constant



REFERENCES

1. Physics for Radiography - Hay and Hughs
2. Ball and mores essential physics radiographers, IV edition, Blackwell publishing.
3. Basic Medical Radiation physics – Stanton.
4. Christensen’s Physics of Diagnostic Radiology – Christensen.
5. Text book of Radiological Safety – K Thayalan.
6. The physics of Radiology and Imaging – K Thayalan.



THANK YOU