



# **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. RADIATION  
2. ATOMIC STRUCTURE  
3. THE NUCLEUS**



# EMISSION



- The fear that Radiation Affects the Human body has Much to do with people's perception of Radiation.
- This perception stems from Nuclear Accidents Which have Transpired in Everyday life.

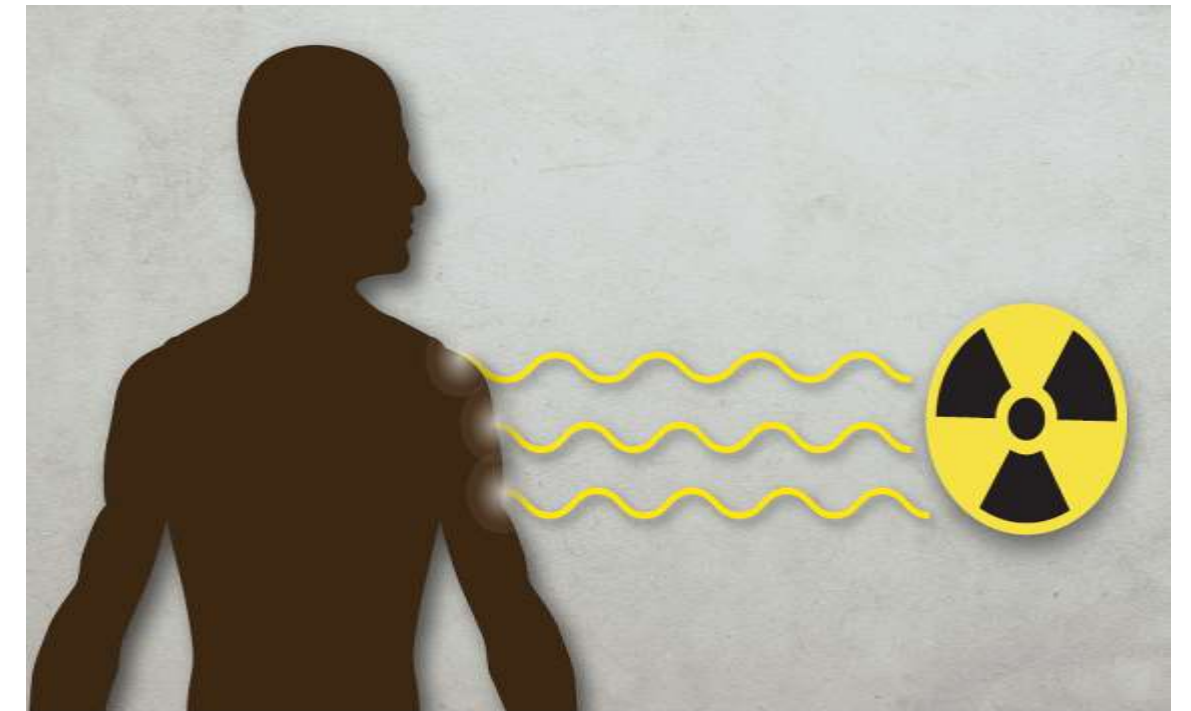




# RADIATION

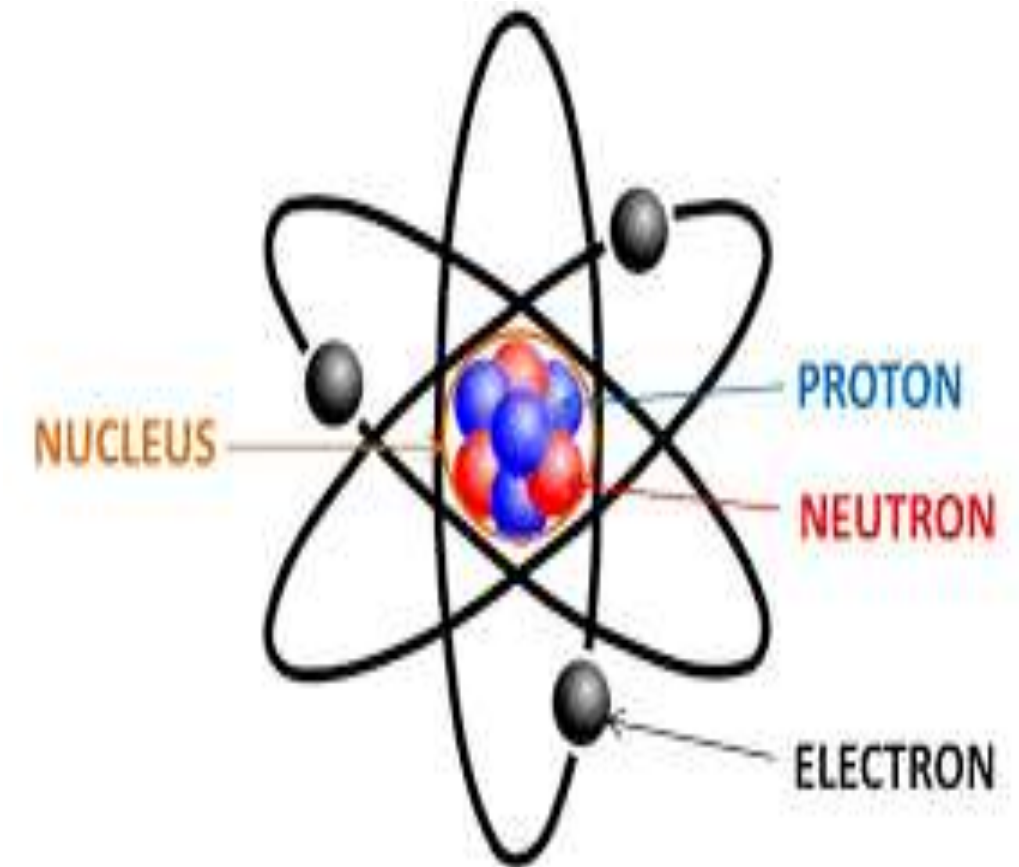


- Radiation is a small packet of energy which travels as waves or particles and transfer energy from one point to another point.
- There are two types of Radiation, Namely
  - ( I ) Photons ( Eg: X-rays and gamma rays )
  - ( II ) Particles ( Eg : protons, neutrons and alpha Particles )
- Radiation is a double edged weapon, analogous to fire which posses both benefits and Hazards.



# AN ATOM

- Smallest and invisible particle in matter.
- All matter is composed of individual entities called elements.
- Each atom consists of a small central core, the nucleus where the most of the atomic mass is located and surrounding “cloud” of electrons moving objects around the nucleus.
- Where as the radius of an atom is approximately  $10^{-10}\text{m}$ .
- And the Radius of the nucleus is about  $10^{-15}\text{m}$ .

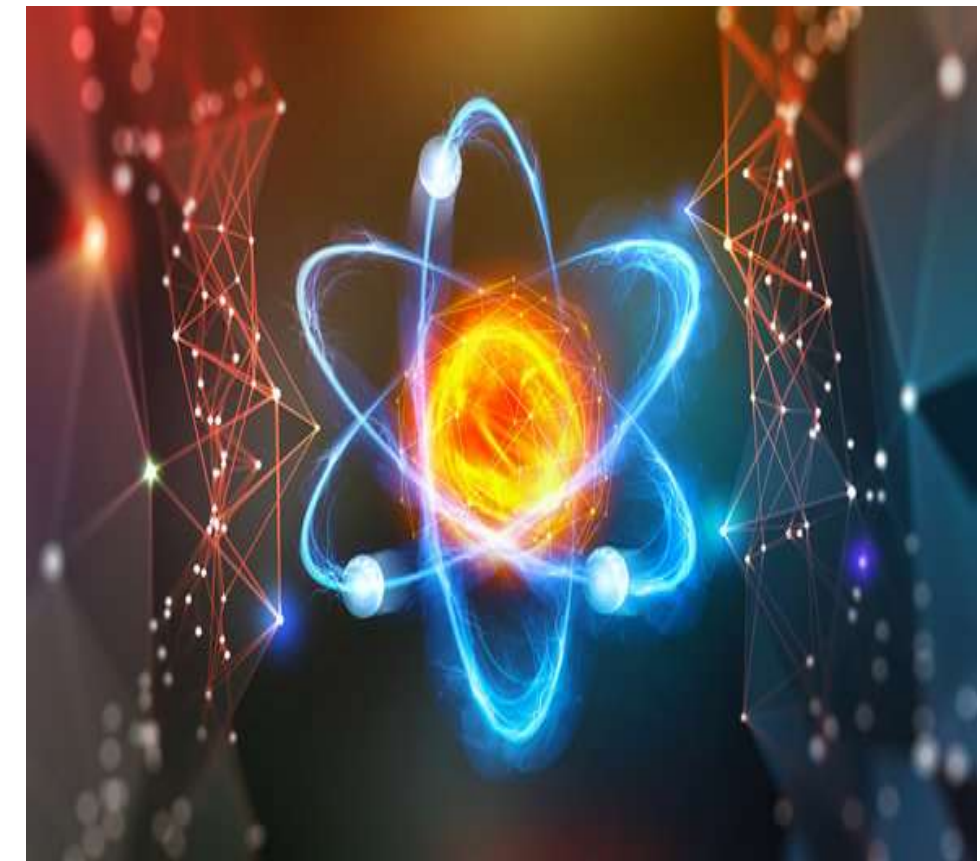




# THE NUCLEUS



- Atoms are made up of a positively charged nucleus surrounded by a cloud of negatively charged electrons.
- Nuclei are very dense and extremely small.
- They contain more than 99.9% of the mass of an atom and are ten thousand times smaller than an atom.
- The nucleus is a collection of particles called protons, which are positively charged, and neutrons, which are electrically neutral.





# INTERROGATIONS



1. It's true that radiation travels in medium or without medium ?!
2. Atom Consists of ?!
3. Radius of an Atom ?!
4. What is Electron ?!



# 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. The physics of Radiology and Imaging – K Thayalan.



**THANK YOU**