

- 1- Compton scattering and photo electric effect are the main processes at X-rays and γ - ray energies
- 2- For low energy (E below 35 Kev) X-ray photons , photo electric effect is the predominant interaction with atom in the target
- 3- Higher - energy X- rays (more than 30 - 40 Kev) interact with matter primarily through the Compton effect
- 4- X- ray imaging, it records degree of transmission of X -ray as a shadowgraph
- 5- X- ray radiograph, A shadowgraph formed by exposure of a photographic film to transmitted X- rays
- 6- CT scan stands for Computed tomography
- 7- CAT scan stands for the Computed Axial Tomography
- 8- The patient dose for a CT scan is higher than that of traditional X- ray
- 9- The effective radiation dose of the CT scan is about 10-12 mSv
- 10- Ct scan is used to describe any imaging technique that produces cross - sectional mage
- 11- PET stands for positron emission tomography
- 12- Positron is the antiparticle of electron
- 13- Positron is the positive electron
- 14- Positron collides with an electron and both are annihilation
- 15- The benefits of PET scanning is that it can be used to get information on metabolic processes
- 16- PET scan is used by researchers to measure blood flow to the brain
- 17- The dose from a single PET scan is similar to that from a CT scan
- 18- Gamma Camera is also called scintillation camera or Anger Camera
- 19- Depending on what body system is being investigated, several different radionuclide are used

- 20- SPECT stands for single- photon emission computed tomography
- 21- SPECT produces a 3 - D image
- 22- Sonography using ultrasound is a medical diagnostic imaging technique that does not use ionising radiation
- 23- Sonography utilises high - frequency acoustic vibration, above limit of human hearing (about 20 KHz)
- 24- The greater the impedance mismatch between two media , the more reflection of ultrasound there will be
- 25- The reflection coefficient, R , is the proportion of the energy of an incoming sound wave that is reflected at a boundary between two media
- 26- Proportion reflected = $(Z_1 - Z_2)^2 / (Z_1 + Z_2)^2$
- 27- Decreasing the reflected ultrasound waves in Sonography by using a gel layer between the prob and the skin
- 28- Ensuring a small difference in impedance to ensure minimal reflection , is called impedance matching
- 29- Ultrasonography is generally considered to be safe, and in many countries it is used routinely to monitor pregnancy
- 30- The devise used to produce acoustic waves with frequency in the low MHz range is called a Piezoelectric transducer

31- However, the ultrasound signal constants of mechanical pressure waves, which can have a heating effect on the tissue.

32. In SI unit the unit of dose radiation is (SV) Sievert.

$$1 \text{ SV} = 1000 \text{ mSV} = 10^3 \text{ mSV}$$

$$1 \text{ mSV} = 0.001 \text{ SV} = 1 \times 10^{-3} \text{ SV}$$