Quizlet NAME _____

## 23 Multiple choice questions

1. a positive electron; an antiparticle
    a. precession
    b. positron
    c. spin
    d. x-rays

2. sound with frequencies greater than 20 000 Hz; can be used to make images of internal organs and tissues
    a. ultrasound
    b. resonance
    c. positron
    d. transducers

3. devices for transforming one type of energy into another; a piezoelectric crystal for instance, changes varying potential differences into vibrations
    a. ultrasound
    b. radiographs
    c. resonance
    d. transducers

4. the typical 'fan shaped' ultrasound images
    a. osteoporosis
    b. ultrasound
    c. x-rays
    d. sector scans

5. the most commonly used radioisotope in medical diagnosis; it has a half-life of six hours and is a pure gamma emitter
    a. resonance
    b. precession
    c. technetium
    d. scanning

6. consist of a filament to produce a beam of electrons, a high temperature resistant target and a cathode and anode to accelerate the electrons; when the electrons collide with a target, they produce heat and x-rays
    a. x-ray machines
    b. radioactivity
    c. x-rays
    d. transducers

7. the use of radioisotopes to treat diseases such as cancer
    a. radiographs
    b. radioactivity
    c. radioisotopes
    d. radiotherapy

8. the reflection of all the light falling on a boundary when the angle of incidence exceeds the critical angle
    a. pair annihilation
    b. Piezoelectric effect
    c. total internal reflection
    d. positron

9. a non-invasive technique used to produce images of internally active parts of the human body by the use of short-lived radioisotopes produced in accelerators
    a. ultrasonography
    b. radiotherapy
    c. radioisotopes
    d. positron emission tomography (PET)

10. the spontaneous breakdown of an atom by the emission of alpha and/or beta and/or gamma rays
    a. radiographs
    b. radiotherapy
    c. radioisotopes
    d. radioactivity

11. high frequency electromagnetic waves of high penetration produced by bombarding a tungsten target with electrons in an evacuated chamber; hard x-rays have short wavelengths (= 0.01 nm); soft x-rays have longer wavelengths (= 1 nm); x-rays can be used to 'see inside' the human body
    a. spin
    b. radiographs
    c. x-rays
    d. x-ray machines

12. the radioactive isotopes of an element; they can be used for body scanning
    a. radioisotopes
    b. radiotherapy
    c. radioactivity
    d. radiographs

13. radio frequencies occur in a range of = 3 kHz to = 300 GHz
    a. radiotherapy
    b. radiographs
    c. radio frequency
    d. radioisotopes

14. the rotation of the axis of spin of a spinning object due to the application of a torque
    a. spin
    b. precession
    c. positron
    d. scanning

15. the negative images formed when x-rays expose a photographic plate
    a. ultrasonography
    b. radiotherapy
    c. radiographs
    d. radioisotopes

16. sympathetic vibration; when a frequency equal to that of the natural frequency of a system fall on it, the system absorbs the energy
    a. spin
    b. resonance
    c. scanning
    d. radiographs

17. a measure of intrinsic angular momentum of an elementary particle; spin is a fundamental property of all elementary particles; it comes in multiples of 1/2 and can be + or -
    a. positron
    b. scanning
    c. x-rays
    d. spin

18. a bone disease characterised by decreased bone mass (bone density), which leads to decreased bone strength and an increased chance of bone fractures
    a. radioisotopes
    b. positron
    c. osteoporosis
    d. sector scans

19. a non-invasive method that uses ultrasound to 'see inside' the human body; imaging modes include A-, B-, sector and phase scans
    a. ultrasound
    b. radiographs
    c. ultrasonography
    d. radiotherapy

20. the process of making an image of the interior of the body
    a. technetium
    b. spin
    c. scanning
    d. resonance

21. a chemical used by the body that has a radioisotope attached to it; used in nuclear imaging and PET scans
    a. radiotherapy
    b. radiopharmaceutical
    c. radioactivity
    d. radio frequency

22. occurs when a positron interacts with an electron producing two gamma rays; these gamma rays have the same energy but travel in opposite directions
    a. precession
    b. pair annihilation
    c. radioactivity
    d. positron

23. a phenomenon where an oscillating potential difference applied to a crystal is converted into a mechanical vibration (and a mechanical vibration into an oscillating potential difference
    a. precession
    b. Piezoelectric effect
    c. positron
    d. radioactivity