ami HTX Examination

X-ray Safety-Operating and Emergency Procedures Quiz

All Users must pass with a score of 80% (40/50)

Score: _____

Name: _____

Date: _____

1. It is impossible to determine the difference of an X-ray or a gamma ray unless you know the source of origin.

True False

2. X-ray machines work by electrically generating a beam of X-rays without the use of radioactive sources.

True False

3. The ami HTX produces radiation, even when power is off.

True False

- 4. The maximum annual allowed whole body exposure limit for the radiation worker is:
 - a. 100 mrem
 - b. 5000 mrem
 - c. 50 mrem
 - d. 200 mrem
- 5. ALARA stands for:
 - a. As Low As Reasonably Accessible
 - b. As Low As Reasonably Achievable
 - c. All Liquid Activity Radiation Analysis
 - d. As Low As Really Acceptable

- 6. Exposure monitoring is conducted for cabinet style x-ray machines by?
 - a) Slowly moving a radiation monitoring device over the machine at a distance of 5 cm.
 - b) Slowing moving a radiation monitoring device over the machine at a distance of 2 cm.
- 7. X-ray equipment must be secured against unauthorized use.

True False

- 8. X-rays are a form of _____ radiation
 - a. Visible
 - b. Particulate
 - c. Electromagnetic
 - d. Cosmic
- 9. Which label must be on every X-ray machine?
 - a. Caution- Radiation Area
 - b. Caution- Produces X-rays when energized
 - c. Caution-High Radiation Area
 - d. Caution- radioactive Materials
- 10. Federal standards require that the radiation emitted from a cabinet x-ray system not exceed ______ in one hour at any point 5 cm from the external surface.
 a. 50 mR
 - b. 1000 mR
 - c. 0.5 mR
 - d. 0.1 mR
- 11. Increased distance from an X-ray device will decrease exposure.

True False

12. The main purpose in the control of radiation exposures are to ensure that any necessary exposures are kept "as low as reasonably achievable (ALARA)

- 13. The wavelength of an X-ray is similar to which of the following electromagnetic radiations:
 - a. Radio waves
 - b. Visible light
 - c. Gamma rays
 - d. Microwaves
- 14. X-ray exposure time for the ami HTX is 10-15 seconds.

True False

- 15. The fundamental principle of radiation protection is to maintain radiation exposure "as low as reasonable achievable".Radiation exposure can be limited by using three methods of 1) time, 2) distance, and:
 - a. Thoughtful reflection
 - b. Patience
 - c. Shielding
 - d. None of the Above
- 16. Which has more penetrating power?
 - a. Alpha
 - b. Beta
 - c. Gamma
- 17. In an emergency, the ami HTX X-ray function can be stopped immediately by:
 - a. disconnecting the power cord
 - b. press the red emergency stop button
 - c. opening the door
 - d. removing the X-ray key
- 18. A source of natural radiation is:
 - a. Chromium 51
 - b. Carbon 14
 - c. Cosmic Radiation
 - d. Nuclear Power Plant
- 19. Gamma Rays can be shielded with plastic.

True False

20. X-rayed specimens do not give off radiation

True False

- 21. Hardware safety interlocks prevent the xray source from being turned on when the imaging system door is
 - a. open
 - b. closed
 - c. none of the above
- 22. Bypassing of safety interlocks, switches or safety mechanisms is not permitted at all times.

True False

- 23. To use the ami HTX, and individual must: a. complete the training module
 - b. perform hands-on training
 - c. pass the 50 question written exam
 - d. pass the 25 question practical exam
 - e. all of the above
- 24. X-rays are produced when high speed electrons hit a metal target

True False

25. Alpha particles can be stopped by a sheet of paper.

True False

26. A radiation badge (dosimeter) is required while using the ami HTX

True False

27. Occupation doses from radiation are typically higher than what an average person receives form natural occurring radiation sources such as Radon and medical procedures.

- 28. The inverse square law
 - a. Describes the relationship between exposure and time
 - b. Explains the relationship between distance to the source and exposure
 - c. Does not apply to X-ray radiation
 - d. None of the above
- 29. The average person receives a whole body dose of _____mrem per year from natural sources.
 - a. 200
 - b. 5000
 - c. 360
 - d. 50
- 30. The main cause of serious X-ray accidents is the user bypassing safety interlocks.

True False

31. Dosimeters are required for all X-ray users.

True False

32. Once you have received X-ray training you are authorized to work with open radioisotopes.

True False

33. Cabinet X-rays are designed with safety interlocks which are engineered to prevent exposure to X-rays when the cabinet is open.

True False

- 34. The maximum energy of X-rays produced by the ami HTX is:
 - a. 50eV
 - b. 100 kV
 - c. 40kV
 - d. None of the above

35. X-Rays and gamma rays both have the same source of origin

True False

- 36. Gamma rays originate from
 - a. Outer space
 - b. The electron cloud surrounding the nucleus
 - c. The nucleus
- 37. X-rays can only be produced by equipment and are not natural in outer space

True False

38. X-rays originate in electron cloud surrounding the nucleus

True False

- 39. Dose rate times time =
 - a Radiation level
 - b. Total dose
 - c. kV
 - d. MA
- 40. X-ray SI units are:
 - a. kV, mA
 - b. Sievert (Sv) and Gray (GY)
 - c. rem and rad
 - d. radiation absorbed dose
- 41. rad is short for
 - a. radiation absorbed dose
 - b. roentgen applied dose
 - c. radiation applied dose
 - d. roentgen absorbed dose
- 42. Roentgen, rad, and rem, can all be considered equivalent

- 43. The X-ray function on the ami HTX can only be activated by:
 - a. password
 - b. key
 - c. voice
 - d. All of the above
- 44.1 Gy is equal to
 - a. 10 kV
 - b. 1 Sv
 - c. 100 rad
 - d. none of the above
- 45. rem is short for:
 - a. radiation equivalent man
 - b. rad equal measure
 - c. roentgen equivalent man
 - d. none of the above
- 46. Kilovoltage (kV) determines the quantity of X-ray photons:

True False

- 47. If 1 cGy = 1 rad then 1 Gy = ____rad
 - a. 1
 - b. 10
 - c. 100
 - d. 1,000

48. The following symbol describes.



- a. Warning Hazardous Voltage
- b. Danger Radiation
- c. Warning The equipment produces Xrays when energized.

49. The maximum X-ray tube current produced by the ami HTX is 200 uA

- 50. Dose limits for the general public are:
 - a. 5000 mrem/yr
 - b. 20 mrem/yr
 - c. 100 mrem/yr
 - d. 1000 mrem/yr