Questions and Answers for Radiography Testing (RT)

1. What is Radiography Testing (RT) in NDT? - RT is a non-destructive testing method that uses X-rays or gamma rays to inspect the internal structure of objects.

2. What are the primary applications of RT in NDT? - RT is used to detect internal defects in materials such as welds, castings, and composites.

3. What are the two primary sources of radiation used in RT? - X-rays and gamma rays.

4. What is the difference between X-rays and gamma rays in RT? - X-rays are generated electronically, while gamma rays are emitted from a radioactive source.

5. What is the purpose of a radiographic image? - To visualize and assess the internal structure of a test object.

6. What is the difference between a radiograph and a radiogram? - They are often used interchangeably; there is no significant difference between them.

7. What is the principle behind radiographic testing? - Materials attenuate (absorb and scatter) X-rays or gamma rays differently based on their thickness and density.

8. What is a radiographic film's purpose in RT? - It records the pattern of radiation attenuation, creating a visible image.

9. What is a radiographic image's quality indicator? - Density, contrast, definition, and detail.

10. What is a radiographic image's density? - The degree of darkening on the radiographic film.

11. What is radiographic contrast? - The difference in density between areas on the radiographic image.

12. What is image definition in radiography? - The sharpness or clarity of the image.

13. What is radiographic detail? - The ability of the image to show fine structures and defects.

14. What is the purpose of an intensifying screen in radiography? - To reduce exposure time and dose by converting X-rays into visible light that exposes the film.

15. What is radiographic sensitivity in RT? - The ability of a radiographic image to detect small defects.

16. What are the major safety precautions for radiographers? - Use of lead aprons, monitoring equipment, and controlled area access.

17. What is the inverse square law in radiography? - It states that radiation intensity decreases with the square of the distance from the source.

18. What is the half-value layer (HVL) in radiography? - The thickness of material that reduces the X-ray intensity to half of its original value.

19. How is the energy of X-ray or gamma ray beams measured? - In kilovoltage (kV) or megavoltage (MV).

20. What is the importance of kilovoltage (kV) in RT? - It determines the X-ray penetration ability.

21. What is milliampere-seconds (mAs) in radiography? - It controls the exposure time and the number of X-ray photons generated.

22. What is a penetrameter in radiographic testing? - A standard reference object used to evaluate the radiographic image's quality and sensitivity.

23. What is the significance of radiographic darkroom procedures? - To ensure proper handling and processing of radiographic films.

24. What is radiographic interpretation? - The process of analyzing radiographic images to identify and evaluate defects.

25. What is the purpose of the "density step-wedge" in radiography? - To check and calibrate the film density.

26. What is a radiographic technique chart? - A chart that provides guidance on exposure factors for different materials and thicknesses.

27. How is the radiographic contrast improved in RT? - By using contrast-enhancing screens or films.

28. What is the minimum requirement for RT personnel certification in accordance with industry standards? - Training, experience, and passing a certification examination.

29. What is the role of the radiographic safety officer on a job site? - To ensure compliance with safety procedures and regulations.

30. What is the maximum permissible dose (MPD) for radiation workers? - The maximum amount of radiation exposure a worker can receive in a defined time period.

31. What is the role of radiographic accessories like lead markers? - To provide information on exposure parameters and orientation.

32. What is backscatter radiation in radiography? - Radiation that scatters back toward the source, potentially exposing the radiographer.

33. What is the purpose of radiographic interpretation codes and standards? - To provide guidelines for classifying and documenting defects.

34. What is a radiographic sensitivity indicator? - The ability of a radiographic image to detect small discontinuities.

35. What is a radiographic IQI (Image Quality Indicator)? - A device used to assess the quality of radiographic images and to confirm sensitivity.

36. How can you determine the correct exposure time in radiography? - By considering the object's thickness, density, and the radiographic technique chart.

37. What is film fog in radiography? - An unwanted exposure on the radiographic film, reducing image quality.

38. What is the role of a lead apron in radiography? - To protect radiographers from unnecessary radiation exposure.

39. What is the purpose of a radiographic darkroom? - To process and handle radiographic films without exposing them to light.

40. How is the source-to-film distance (SFD) determined in radiography? - It is set based on the desired magnification and image size.

41. What is radiographic tube voltage (kV) selection based on? - Material thickness and density.

42. What is the minimum thickness for which RT is generally applicable? - Typically, 2 mm is the minimum thickness suitable for RT.

43. What is the role of a collimator in radiography? - To limit the X-ray beam to the area of interest.

44. What is the role of the Geiger-Muller counter in radiography? - To measure and monitor radiation levels.

45. How is radiographic film processed in a darkroom? - It undergoes a series of chemical treatments including development, fixing, and washing.

46. What is the difference between a radiographic shot and an exposure in RT? - A radiographic shot is a single X-ray exposure, while an exposure can consist of multiple shots.

47. What is the radiographic acceptance criteria for welds in RT? - It depends on the applicable code and standards.

48. What is radiographic unsharpness? - Blurriness in the image caused by factors like focal spot size or source-to-object distance.

49. What is the purpose of radiographic filtration? - To remove low-energy X-rays that contribute to image noise and reduce contrast.

50. What is the radiographic interpretation process? - Evaluating and documenting defects based on size, shape, and location.

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