



**COURSES**

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## Questions and Answers for Radiographic Film Interpretation (RTFI)

- 1. What is Radiographic Film Interpretation in NDT?** - Radiographic Film Interpretation is the process of analyzing X-ray or radiographic films to identify and evaluate defects and anomalies in materials and components.
- 2. Why is Radiographic Film Interpretation important in NDT?** - It is essential for detecting and characterizing internal defects that are not visible to the naked eye, ensuring the integrity of critical components.
- 3. What is the purpose of a radiographic image in NDT?** - To provide a visual representation of the internal structure of an object, highlighting potential defects.
- 4. What are the typical defects that can be detected in radiographic films?** - Defects such as cracks, porosity, inclusions, lack of fusion, and porosity.
- 5. What is the difference between a radiograph and a radiogram?** - They are often used interchangeably and refer to the same thing: an X-ray image.
- 6. What is the density on a radiographic film, and how is it measured?** - Density is the degree of darkening on the radiographic film. It is measured using a densitometer.
- 7. How does radiographic contrast impact film interpretation?** - Contrast is the difference in density between areas on the radiographic image. High contrast makes defects stand out more clearly.
- 8. What is radiographic sensitivity?** - Radiographic sensitivity refers to the ability of a radiographic image to detect small or subtle defects.
- 9. How is the image definition in radiographic film interpretation related to image sharpness?** - Image definition, or sharpness, refers to the clarity and detail in the image. A sharp image provides better visualization of defects.
- 10. What is the purpose of an image quality indicator (IQI) in radiographic film interpretation?** - An IQI is a reference object used to evaluate the quality of radiographic images and confirm sensitivity.
- 11. What is the role of a penetrameter in radiographic film interpretation?** - A penetrameter is a standard reference object used to determine radiographic sensitivity and defect size.
- 12. What is radiographic unsharpness?** - Radiographic unsharpness is the blurring of image details due to factors like geometric unsharpness or focal spot size.
- 13. How does the Geiger-Muller counter play a role in radiographic film interpretation?** - It measures radiation levels and helps ensure safety in radiographic work areas.
- 14. What is the inverse square law in radiography, and how does it impact radiographic film interpretation?** - The inverse square law states that radiation intensity decreases with the square of the distance from the source. It's important in calculating exposure times and interpreting film quality.

- 15. What is radiographic tube voltage (kV) selection based on?** - The material thickness and density being examined, with higher kV providing greater penetration.
- 16. How is radiographic exposure time determined in radiographic film interpretation?** - Exposure time depends on the object's thickness, material, and radiographic technique chart.
- 17. What is the purpose of radiographic intensifying screens?** - They reduce exposure time and dose by converting X-rays into visible light that exposes the film.
- 18. What is film fog in radiographic film interpretation?** - Film fog is an unwanted exposure on the radiographic film, reducing image quality.
- 19. What is the role of a radiographic interpretation code or standard?** - It provides guidelines for classifying and documenting defects based on their size, shape, and location.
- 20. What is the process of evaluating radiographic density step-wedges?** - They are used to check and calibrate film density and evaluate radiographic sensitivity.
- 21. What is a radiographic interpretation technique chart?** - It provides guidance on exposure factors for different materials, thicknesses, and configurations.
- 22. What are the primary safety precautions for radiographic film interpretation?** - Proper handling of radiographic materials, controlled access to radiation areas, and the use of lead shielding and dosimeters.
- 23. How is the radiographic interpretation performed for welds?** - By assessing the weld bead, penetration, and the presence of defects like cracks and inclusions.
- 24. What is the purpose of a radiographic interpretation qualification in NDT?** - To demonstrate competence and understanding of radiographic film interpretation procedures.
- 25. How is radiographic film processed in a darkroom?** - It undergoes development, fixing, washing, and drying to create a visible image.
- 26. What is the role of the density step-wedge in radiographic interpretation?** - To calibrate the film density and assess radiographic sensitivity.
- 27. What is the purpose of radiographic interpretation accessories like lead markers?** - To provide information on exposure parameters and object orientation.
- 28. How can radiographic image quality be improved?** - By using contrast-enhancing screens, higher resolution films, and optimizing exposure factors.
- 29. What is the minimum thickness suitable for radiographic interpretation?** - Typically, 2 mm is considered the minimum thickness for effective radiography.
- 30. What is radiographic interpretation film digitization, and why is it used?** - Digitization involves converting radiographic films into digital formats for storage, analysis, and sharing.
- 31. How can radiographic interpretation personnel achieve certification?** - Through training, experience, and passing a certification examination.
- 32. What is the purpose of a radiographic interpretation safety officer on a job site?** - To ensure compliance with safety procedures, monitor radiation levels, and maintain safety standards.
- 33. What is the radiographic interpretation acceptance criteria for welds?** - The criteria for weld acceptance depend on the applicable code and standards.

- 34. What is the significance of radiographic interpretation film masking?** - It's used to block extraneous radiation and improve the clarity of the image.
- 35. What is the radiographic interpretation shot noise, and how can it be reduced?** - Shot noise is random fluctuations in image density caused by low photon counts. It can be reduced by increasing exposure factors.
- 36. How is the source-to-film distance (SFD) determined in radiographic interpretation?** - It is set based on the desired magnification and image size.
- 37. What is the role of radiographic interpretation contrast-enhancing screens?** - They increase the visibility of fine details and defects on radiographic images.
- 38. What is the purpose of radiographic interpretation cropping and collimation?** - To limit the X-ray exposure area to the specific region of interest.
- 39. What is radiographic interpretation computed radiography (CR), and how does it work?** - CR uses photostimulable storage phosphor plates to capture X-ray images, which are then digitally processed.
- 40. What is the purpose of radiographic interpretation automatic film processing?** - It accelerates film development, improving efficiency and image quality.
- 41. What is a radiographic interpretation IQI (Image Quality Indicator)?** - An IQI is a reference object used to evaluate the quality and sensitivity of radiographic images.
- 42. What is radiographic interpretation image stitching?** - It involves combining multiple radiographic images to form a single, larger image of an extended object.
- 43. What is radiographic interpretation edge enhancement, and how is it achieved?** - Edge enhancement is the process of enhancing the visibility of the object's boundaries and features. It can be achieved through post-processing techniques.
- 44. What is radiographic interpretation backscatter radiation?** - Backscatter radiation is radiation that scatters back toward the source, potentially exposing the radiographer to radiation.
- 45. What is radiographic interpretation automatic defect recognition (ADR)?** - ADR is a technology that automates the detection and analysis of defects in radiographic images.
- 46. What is the role of radiographic interpretation image stitching?** - Image stitching involves combining multiple radiographic images to form a single, larger image of an extended object.
- 47. What is the purpose of radiographic interpretation edge enhancement?** - Edge enhancement enhances the visibility of object boundaries and features to improve image clarity.
- 48. How is radiographic film archival and storage managed in radiographic interpretation?** - Films are stored in a controlled environment with proper labeling, organization, and access management.
- 49. What is the radiographic interpretation radiographic acceptance criteria for castings?** - Acceptance criteria for castings are typically specified in applicable industry standards and codes.
- 50. What is the significance of radiographic interpretation image analysis software?** - Image analysis software aids in quantifying and documenting defects, improving objectivity and repeatability in interpretation.

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