Subject Name & Code : Non Destructive Evaluation (PEME703C) Exam Name : Q2

1. Ultrasonic testing is primarily used to detect: [A]

A) a)Cracks and discontinuities B) b) Surface roughness C) c) Material hardness D) d) Dimensional accuracy

2. The basic principle of ultrasonic testing involves: [C]

A) a) Measuring electrical conductivity B) b) Detecting radioactive emissions C) c) Evaluating sound wave propagation D) d) Analyzing thermal properties

3. Which type of ultrasonic testing probe is commonly used for thickness measurements? [C]

A) a) Angle beam probe B) b) Immersion probe C) c) Contact probe D) d) Dual-element probe

4. Phased array ultrasonic testing uses: [B]

A) a) Single transducer to generate and receive sound waves B) b) Multiple transducers to generate and receive sound waves C) c) Transducers that emit X-rays D) d) Transducers that emit magnetic fields

5. Which of the following probe configurations is typically used for inspecting curved surfaces? [B]

A) a) Flat-faced probe B) b) Angle beam probe C) c) Dual-element probe D) d) Immersion probe

6. The purpose of a delay line in ultrasonic testing is to: [D]

A) a) Reduce the noise in the received signal B) b) Amplify the ultrasonic waves C) c) Focus the ultrasonic beam D) d) Control the penetration depth

7. Phased array probes are commonly used for: [D]

A) a) Detecting surface cracks B) b) Measuring material hardness C) c) Evaluating material composition D) d) Scanning large areas quickly

8. Which of the following probe configurations is most suitable for detecting planar defects parallel to the test surface? [B]

A) a) immersion probe B) b)angle beam probe C) c) Dual-element probe D) d) Contact probe

9. Which parameter is commonly adjusted to control the beam angle in angle beam ultrasonic testing? [A]

A) a) Frequency of the ultrasonic wave B) b) Pulse duration C) c) Distance between the probe and the test surface D) d) Wedge angle

10. What is non-destructive testing (NDT)? [B]

A) a)A testing method that destroys the test specimen B) b)A testing method that does not damage the test specimen C) c)A testing method used only for destructive materials D) d) A testing method used for testing electrical components

11. Which of the following is a commonly used magnetizing technique in MPT for detecting surface defects? [A]

A) a) Circular magnetization B) b) Longitudinal magnetization C) c) Residual magnetization D) d) Alternating magnetization

12. The depth of penetration of eddy currents is influenced by which of the following factors? [D]

A) a) Frequency of the eddy currents B) b) Magnetic field strength C) c) Material conductivity D) d) All of the mentioned

13. What is the primary purpose of non-destructive testing? [B]

A) a) To determine the exact composition of a material B) b) To assess the structural integrity of a component or material C) c) To alter the properties of a material D) d) To destroy defective components

14. What physical principle does eddy current testing rely on? [B]

A) a) Sound wave propagation B) b) Electromagnetic induction C) c) X-ray radiation D) d) Magnetic resonance

15. How does a piezoelectric transducer generate ultrasonic waves? [B]

A) a) By applying an electric current to a magnetic coil B) b) By using a piezoelectric crystal to convert electrical energy into mechanical vibrations C) c) By using an electromagnetic coil to generate ultrasonic waves D) d) By using a capacitive sensor to detect ultrasonic waves

16. Which of the following is a disadvantage of electromagnetic acoustic transducers (EMATs)? [D]

A) a) They cannot be used in wet or humid environments B) b) They are expensive compared to other transducer types C) c) They require a power source to operate D) d) They have limited frequency range and penetration depth

17. What is the purpose of a couplant in ultrasonic testing? [C]

A) a) To enhance the electrical conductivity of the transducer B) b) To provide lubrication for the transducer movement C) c) To improve the acoustic coupling between the transducer and the test specimen D) d) To prevent corrosion of the transducer surface

18. Which of the following materials is commonly used for the housing of ultrasonic transducers? [A]

A) a) Glass B) b) Aluminum C) c) Steel D) d) Plastic

19. Which of the following defects can be detected using ultrasonic testing? [A]

A) a) Surface cracks B) b) Porosity C) c) Inclusions D) d) All of the above

20. What is the main goal of non-destructive testing (NDT)? [B]

A) a. To destroy the tested material B) b. To identify and evaluate defects without damaging the material C) c. To measure the strength of the material D) d. To test the material under extreme conditions

21. Which of the following is NOT a commonly used NDT method? [D]

A) a. Ultrasonic testing B) b. Radiographic testing C) c. Dye penetrant testing D) d. Destructive testing

22. Which NDT method uses X-rays or gamma rays to examine the internal structure of an object? [B]

A) a. Ultrasonic testing B) b. Radiographic testing C) c. Magnetic particle testing D) d. Visual testing

23. Which NDT method uses magnetic fields to identify defects in ferromagnetic materials? [C]

A) a. Ultrasonic testing B) b. Radiographic testing C) c. Magnetic particle testing D) d. Eddy current testing

24. Which NDT method is commonly used to detect surface cracks and discontinuities? [C]

A) a. Ultrasonic testing B) b. Radiographic testing C) c. Liquid penetrant testing D) d. Eddy current testing

25. Which NDT method is based on the principle of sound wave propagation? [B]

A) a. Radiographic testing B) b. Ultrasonic testing C) c. Magnetic particle testing D) d. Eddy current testing

26. Which NDT method is best suited for inspecting welds and bonded joints? [A]

A) a. Ultrasonic testing B) b. Radiographic testing C) c. Liquid penetrant testing D) d. Visual testing

27. Which NDT method uses a magnetic field and electric current to detect defects in conductive materials? [D]

A) a. Ultrasonic testing B) b. Radiographic testing C) c. Magnetic particle testing D) d. Eddy current testing

28. Which NDT method relies on the reflection of sound waves to detect defects? [A]

A) a. Ultrasonic testing B) b. Radiographic testing C) c. Liquid penetrant testing D) d. Eddy current testing

29. Which NDT method involves the application of a liquid solution to the surface of a material to detect surface defects? [C]

A) a. Ultrasonic testing B) b. Radiographic testing C) c. Liquid penetrant testing D) d. Eddy current testing

30. What does the acronym "NDT" stand for? [C]

A) a. Non-Destructive Technique B) b. Non-Damage Testing C) c. Non-Destructive Testing D) d. Non-Detectable Technique

31. Which of the following is NOT a flaw characterization technique? [D]

A) a. Microscopic analysis B) b. Ultrasonic testing C) c. Magnetic particle testing D) d. X-ray diffraction

32. What is the purpose of flaw characterization techniques? [D]

A) a. To determine the size of defects B) b. To identify the type of defects C) c. To evaluate the severity of defects D) d. All of the above

33. Which flaw characterization technique is commonly used to determine the chemical composition of a material? [C]

A) a. Microscopic analysis B) b. Ultrasonic testing C) c. X-ray diffraction D) d. Scanning electron microscopy

34. Which flaw characterization technique uses a beam of electrons to produce high-resolution images of a material's surface? [D]

A) a. Microscopic analysis B) b. Ultrasonic testing C) c. Magnetic particle testing D) d. Scanning electron microscopy

35. Which flaw characterization technique is based on the principle of measuring the angles at which X-rays are diffracted by a crystal lattice? [C]

A) a. Microscopic analysis B) b. Ultrasonic testing C) c. X-ray diffraction D) d. Scanning electron microscopy

36. Which flaw characterization technique is commonly used to analyze the microstructure of materials? [A]

A) a. Microscopic analysis B) b. Ultrasonic testing C) c. Magnetic particle testing D) d. X-ray diffraction

37. Which flaw characterization technique is used to measure the hardness of a material? [D]

A) a. Microscopic analysis B) b. Ultrasonic testing C) c. X-ray diffraction D) d. Hardness testing

38. Which flaw characterization technique uses a focused beam of light to create high-resolution images of a material's surface? [A]

A) a. Microscopic analysis B) b. Ultrasonic testing C) c. Magnetic particle testing D) d. Scanning electron microscopy

39. Which flaw characterization technique is commonly used to identify the presence of magnetic fields around defects? [D]

A) a. Microscopic analysis B) b. Ultrasonic testing C) c. Magnetic particle testing D) d. Eddy current testing

40. In non-destructive testing (NDT), what is the primary goal? [B]

A) a) To destroy the test specimen B) b) To identify manufacturing defects C) c) To measure the material's strength D) d) To assess the environmental impact

41. Which of the following is not a method of non-destructive testing? [D]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Infrared testing D) d) Destructive testing

42. Infrared testing is based on the detection of which type of radiation? [D]

A) a) Ultraviolet radiation B) b) Visible light C) c) Gamma radiation D) d) Infrared radiation

43. What is the advantage of infrared testing over other methods? [B]

A) a) It can detect internal defects B) b) It can detect surface defects C) c) It is faster than other methods D) d) It is cheaper than other methods

44. Which of the following materials cannot be inspected using infrared testing? [D]

A) a) Metals B) b) Plastics C) c) Concrete D) d) Ceramics

45. Which non-destructive testing method is commonly used for inspecting the integrity of turbine rotors? [D]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Eddy current testing

46. What is the primary advantage of non-destructive testing in the nuclear industry? [C]

A) a) It provides accurate and direct measurement of material properties. B) b) It allows for the inspection of complex shapes and structures. C) c) It reduces the risk of failures in nuclear power plants. D) d) It can detect defects and discontinuities without damaging the material.

47. Which non-destructive testing method is commonly used for inspecting the integrity of storage tanks for hazardous chemicals? [D]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

48. The primary advantage of ultrasonic testing is its ability to: [B]

A) a) Detect surface cracks and defects B) b) Detect internal flaws in materials C) c) Determine material hardness D) d) Measure material thickness

49. Which non-destructive testing method is commonly used for inspecting the integrity of medical implants? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

50. What is the primary advantage of non-destructive testing in the aerospace industry? [C]

A) a) It provides accurate and direct measurement of material properties. B) b) It allows for the inspection of complex shapes and structures. C) c) It reduces the risk of failures in aircraft components. D) d) It can detect defects and discontinuities without damaging the material.

51. Which of the following is an example of a non-destructive testing method? [C]

A) a) Tensile testing B) b) Hardness testing C) c) Radiographic testing D) d) Fatigue testing

52. What is the purpose of using a black light in MPT? [C]

A) a) To heat the test specimen B) b) To generate magnetic fields C) c) To inspect fluorescent particles D) d) To provide visibility in low-light conditions

53. The primary advantage of ultrasonic testing is its ability to [B]

A) a) Detect surface cracks and defects B) b) Detect internal flaws in materials C) c) Determine material hardness D) d) Measure material thickness

54. Liquid penetrant testing is a non-destructive testing method used to detect: [A]

A) a) Cracks and discontinuities on the surface B) b) Internal defects C) c) Magnetic fields D) d) Electrical conductivity

55. What is the primary advantage of non-destructive testing in the marine industry? [C]

A) a) It provides accurate and direct measurement of material properties. B) b) It allows for the inspection of complex shapes and structures. C) c) It reduces the risk of structural failures in ships and offshore structures. D) d) It can detect defects and discontinuities without damaging the material.

56. Heat transfer by direct molecular collision is known as: [A]

A) a) Conduction B) b) Convection C) c) Radiation D) d) None of the above

57. The transfer of heat through a fluid medium is primarily governed by: [B]

A) a) Conduction B) b) Convection C) c) Radiation D) d) Thermal conductivity

58. Which non-destructive testing method is commonly used for inspecting the integrity of rail tracks? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

59. Infrared testing can be used to detect which of the following in electrical systems? [D]

A) a) Overheating connections B) b) Insulation degradation C) c) Short circuits D) d) All of the above

60. Infrared testing is not affected by which of the following factors? [A]

A) a) Lighting conditions B) b) Material thickness C) c) Surface finish D) d) Test specimen size

61. Infrared testing can be used to detect which of the following in building envelopes? [D]

A) a) Air leaks B) b) Moisture intrusion C) c) Insulation gaps D) d) All of the above

62. The emissivity of a material refers to its ability to: [C]

A) a) Conduct heat B) b) Absorb light C) c) Emit infrared radiation D) d) Transmit electricity

63. Infrared testing is an effective method for detecting which of the following in mechanical systems? [D]

A) a) Bearing defects B) b) Misalignments C) c) Lubrication issues D) d) All of the above

64. Infrared testing can be used to identify which of the following conditions in rotating equipment? [D]

A) a) Imbalance B) b) Misalignment C) c) Bearing wear D) d) All of the above

65. Which of the following is a limitation of infrared testing? [B]

A) a) It requires contact with the test specimen B) b) It cannot detect subsurface defects C) c) It is sensitive to electromagnetic interference D) d) It is expensive to implement

66. Infrared testing is based on the principle of thermal: [C]

A) a) Conduction B) b) Convection C) c) Radiation D) d) Expansion

67. Infrared testing is most effective for detecting defects in which of the following materials? [B]

A) a) Transparent materials B) b) Opaque materials C) c) Ferromagnetic materials D) d) Non-metallic materials

68. Infrared testing is commonly used in which stage of the product lifecycle? [D]

A) a) Design B) b) Manufacturing C) c) Maintenance D) d) All of the above

69. Infrared testing is commonly used in which type of inspection? [D]

A) a) Pre-service B) b) In-service C) c) Post-service D) d) All of the above

70. Which of the following is not a type of infrared testing? [D]

A) a) Passive infrared testing B) b) Active infrared testing C) c) Thermographic imaging D) d) Ultrasonic imaging

71. Infrared testing can be used to detect which of the following defects in pipelines? [D]

A) a) cracks B) b) Corrosion C) c) Blockages D) d) All of the above

72. Infrared testing can be used to identify which of the following in HVAC systems? [D]

A) a) Airflow issues B) b) Insulation deficiencies C) c) Refrigerant leaks D) d) All of the above

73. Infrared testing can be used to detect which of the following in electrical circuits? [D]

A) a) Overloads B) b) Imbalanced loads C) c) Ground faults D) d) All of the above

74. Infrared testing is based on the fact that all objects with a temperature above absolute zero emit: [B]

A) a) Sound waves B) b) Electromagnetic waves C) c) Radio waves D) d) X-rays

75. Infrared testing is most effective when the test specimen is in a steady state of: [B]

A) a) Conduction B) b) Radiation C) c) covention D) d) Equilibrium

76. Infrared testing can be used to identify which of the following in solar panels? [D]

A) a) Cell defects B) b) Wiring issues C) c) Hotspots D) d) All of the above

77. Infrared testing is not affected by which of the following atmospheric conditions? [D]

A) a) Rain B) b) Wind C) c) Humidity D) d) Temperature

78. Infrared testing is commonly used in which field of engineering? [D]

A) a) Civil engineering B) b) Mechanical engineering C) c) Electrical engineering D) d) All of the above

79. Infrared testing can be used to detect which of the following in storage tanks? [D]

A) a) Contamination B) b) Level variations C) c) Structural defects D) d) All of the above

80. Infrared testing can be used to detect which of the following defects in composite materials? [D]

A) a) Delaminations B) b) Fiber misalignments C) c) Voids D) d) All of the above

81. Infrared testing is not suitable for inspecting which of the following components? [C]

A) a) Electrical cables B) b) Electronic circuit boards C) c) Biological specimens D) d) None of the above

82. Infrared testing is based on which scientific field? [A]

A) a) Thermodynamics B) b) Optics C) c) Acoustics D) d) Electronics

83. Infrared testing can be used to identify which of the following issues in steam systems? [D]

A) a) Steam leaks B) b) Condensate buildup C) c) Insulation damage D) d) All of the above

84. Infrared testing can be used to detect which of the following defects in aerospace components? [D]

A) a) Fatigue cracks B) b) Bonding issues C) c) Contaminants D) d) All of the above

85. Infrared testing can be used to identify which of the following in storage tanks? [D]

A) a) Leakage B) b) Material degradation C) c) Level variations D) d) All of the above

86. What is the primary advantage of non-destructive testing in the pharmaceutical industry? [C]

A) a) It provides accurate and direct measurement of material properties B) b) It allows for the inspection of complex shapes and structures. C) c) It ensures the quality and safety of pharmaceutical products. D) d) It can detect defects and discontinuities without damaging the material.

87. Infrared testing is commonly used in which industry? [D]

A) a) Aerospace B) b) Automotive C) c) Construction D) d) All of the above

88. Infrared cameras used in testing rely on the detection of which type of radiation? [C]

A) a) X-rays B) b) Visible light C) c) Infrared radiation D) d) Radio waves

89. Which of the following is not a component of an infrared testing system? [C]

A) a) Infrared camera B) b) Thermographic software C) c) X-ray machine D) d) Heat source

90. Infrared testing can be used to detect which of the following defects? [D]

A) a) Voids B) b) Delamination C) c) corrosion D) d) All of the above

91. Infrared testing is primarily used for which type of inspection? [A]

A) a) Structural integrity B) b) Surface finish C) c) Material hardness D) d) Chemical composition

92. Infrared testing is based on the principle that materials emit infrared radiation based on their: [B]

A) a) Electrical conductivity B) b) Thermal conductivity C) c) Mechanical strength D) d) Magnetic properties

93. Infrared testing can be used to detect which of the following phenomena? [A]

A) a) Heat transfer B) b) Electrical conductivity C) c) Sound propagation D) d) Optical absorption

94. Infrared testing is useful for identifying which of the following types of defects? [D]

A) a) Fatigue cracks B) b) Welding defects C) c) Porosity D) d) All of the above

95. Infrared testing is most effective when there is a significant temperature difference between the: [A]

A) a) Test specimen and the environment B) b) Test specimen and the inspector C) c) Test specimen and the control specimen D) d) Test specimen and the ultrasonic probe

96. Which of the following is not a potential application of infrared testing? [D]

A) a) Building diagnostics B) b) Moisture detection C) c) Food quality inspection D) d) Particle size analysis

97. Which of the following is not a non-destructive testing method? [C]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Tensile testing D) d) Radiographic testing

98. In NDT, what does the acronym "ND" stand for? [A]

A) a) Non-Destructive B) b) Non-Detectable C) c) Non-Dissipative D) d) Non-Degrading

99. Which of the following is a visual inspection method used in NDT? [C]

A) a) Magnetic particle testing B) b) Eddy current testing C) c) Liquid penetrant testing D) d) Radiographic testing

100. Which NDT method uses X-rays or gamma rays to inspect materials? [C]

A) a) Magnetic particle testing B) b) Ultrasonic testing C) c) Radiographic testing D) d) Liquid penetrant testing

101. What is the purpose of liquid penetrant testing? [A]

A) a) To detect surface cracks and discontinuities B) b) To measure material hardness C) c) To detect internal defects in materials D) d) To inspect the surface roughness of a material

102. Which of the following is an electromagnetic NDT method? [A]

A) a) Magnetic particle testing B) b) Ultrasonic testing C) c) Liquid penetrant testing D) d) Radiographic testing

103. Which NDT method uses sound waves to inspect materials? [B]

A) a) Magnetic particle testing B) b) Ultrasonic testing C) c) Liquid penetrant testing D) d) Radiographic testing

104. Which of the following is a thermal NDT method? [C]

A) a) Eddy current testing B) b) Magnetic particle testing C) c) Infrared thermography D) d) Radiographic testing

105. What is the principle behind ultrasonic testing? [A]

A) a) Sound waves are reflected at interfaces within the material. B) b) Electromagnetic waves are absorbed by defects in the material. C) c) Liquid penetrant is drawn into surface-breaking defects. D) d) X-rays or gamma rays pass through the material, creating an image.

106. Which of the following is not a common application of ultrasonic testing? [D]

A) a) Weld inspection B) b) Thickness measurement C) c) Crack detection D) d) Magnetic field measurement

107. Which type of magnetic particle testing is suitable for detecting surface defects? [C]

A) a) Dry particle testing B) b) Wet particle testing C) c) Fluorescent particle testing D) d) Black light particle testing

108. The liquid penetrant testing method is commonly used for inspecting materials made of: [A]

A) a) Metals B) b) Plastics C) c) Glass D) d) Ceramics

109. What does the term "tensile testing" refer to? [A]

A) a) Testing the tensile strength of a material B) b) Testing the thermal conductivity of a material C) c) Testing the electrical resistance of a material D) d) Testing the surface roughness of a material

110. Which of the following is not a common application of radiographic testing? [D]

A) a) Weld inspection B) b) Casting inspection C) c) Thickness measurement D) d) Hardness testing

111. Which thermal testing method measures the temperature distribution of a surface using infrared cameras? [A]

A) a) Infrared thermography B) b) Thermocouple measurement C) c) Thermal conductivity testing D) d) Thermal expansion testing

112. What is the primary advantage of infrared thermography? [A]

A) a) It can detect temperature variations in a wide area. B) b) It provides a visual image of the internal structure. C) c) It can measure the thermal conductivity of a material. D) d) It does not require direct contact with the material.

113. What is the purpose of thermal expansion testing? [B]

A) a) To measure the thermal conductivity of a material B) b) To determine the coefficient of thermal expansion C) c) To detect surface cracks and discontinuities D) d) To inspect the surface roughness of a material

114. Which thermal testing method measures the temperature using a device that generates an electromotive force proportional to the temperature difference? [B]

A) a) Infrared thermography B) b) Thermocouple measurement C) c) Thermal conductivity testing D) d) Thermal expansion testing

115. What is the primary advantage of thermocouple measurement? [D]

A) a) It provides a visual image of the internal structure. B) b) It can measure the thermal conductivity of a material. C) c) It can detect temperature variations in a wide area. D) d) It provides accurate and direct temperature measurement.

116. Which of the following is not a common application of thermal testing? [C]

A) a) Detecting heat exchanger fouling B) b) Inspecting electrical components for overheating C) c) Measuring the thickness of a material D) d) Monitoring the temperature of industrial processes

117. What is the primary advantage of non-destructive testing methods? [C]

A) a) They provide accurate and direct measurement of material properties. B) b) They allow for the inspection of complex shapes and structures. C) c) They can detect defects and discontinuities without damaging the material. D) d) They provide a visual image of the internal structure of the material.

118. Which non-destructive testing method is commonly used for weld inspection? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

119. What is the primary disadvantage of non-destructive testing methods? [C]

A) a) They can be time-consuming and require specialized equipment. B) b) They cannot provide accurate measurement of material properties. C) c) They may cause damage to the material being inspected. D) d) They are limited in their ability to detect certain types of defects.

120. Which non-destructive testing method is commonly used for inspecting aircraft components for cracks? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

121. Which non-destructive testing method is commonly used for inspecting the surface roughness of a material? [D]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Visual inspection

122. Which non-destructive testing method is commonly used for inspecting the hardness of a material? [D]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Hardness testing

123. What is the primary advantage of magnetic particle testing? [A]

A) a) It can detect surface and near-surface defects. B) b) It provides a visual image of the internal structure. C) c) It does not require direct contact with the material. D) d) It can measure the thermal conductivity of a material.

124. Which non-destructive testing method is commonly used for inspecting the surface finish of a material? [D]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Surface roughness testing

125. Which non-destructive testing method is commonly used for inspecting the integrity of concrete structures? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Concrete strength testing

126. What is the primary advantage of liquid penetrant testing? [A]

A) a) It can detect surface and near-surface defects. B) b) It provides a visual image of the internal structure. C) c) It does not require direct contact with the material. D) d) It can measure the electrical resistance of a material.

127. Which non-destructive testing method is commonly used for inspecting the integrity of pipelines? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

128. What is the primary advantage of radiographic testing? [A]

A) a) It can detect internal defects in materials. B) b) It provides a visual image of the surface roughness. C) c) It does not require direct contact with the material. D) d) It can measure the electrical resistance of a material.

129. Which non-destructive testing method is commonly used for inspecting the integrity of welds in pressure vessels? [D]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

130. What is the primary advantage of eddy current testing? [A]

A) a) It can detect surface and near-surface defects. B) b) It provides a visual image of the internal structure. C) c) It does not require direct contact with the material. D) d) It can measure the thermal conductivity of a material.

131. Which non-destructive testing method is commonly used for inspecting the conductivity of electrical conductors? [C]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Eddy current testing D) d) Radiographic testing

132. What is the primary advantage of ultrasonic testing? [A]

A) a) It can detect internal defects in materials. B) b) It provides a visual image of the surface roughness. C) c) It does not require direct contact with the material. D) d) It can measure the electrical resistance of a material.

133. Which thermal testing method measures the thermal conductivity of a material? [C]

A) a) Infrared thermography B) b) Thermocouple measurement C) c) Thermal conductivity testing D) d) Thermal expansion testing

134. What is the primary advantage of thermal expansion testing? [B]

A) a) It provides a visual image of the internal structure. B) b) It can measure the thermal conductivity of a material. C) c) It can detect temperature variations in a wide area. D) d) It provides information about the material's response to temperature changes.

135. Which thermal testing method measures the heat transfer characteristics of a material? [C]

A) a) Infrared thermography B) b) Thermocouple measurement C) c) Thermal conductivity testing D) d) Thermal expansion testing

136. What is the primary advantage of thermal conductivity testing? [C]

A) a) It provides a visual image of the internal structure. B) b) It can detect temperature variations in a wide area. C) c) It provides information about the material's heat transfer characteristics. D) d) It can measure the thermal expansion coefficient of a material.

137. Which thermal testing method is commonly used for inspecting the insulation of buildings? [A]

A) a) Infrared thermography B) b) Thermocouple measurement C) c) Thermal conductivity testing D) d) Thermal expansion testing

138. What is the primary advantage of infrared thermography in thermal testing? [C]

A) a) It provides a visual image of the internal structure. B) b) It can measure the thermal conductivity of a material. C) c) It can detect temperature variations in a wide area. D) d) It provides accurate and direct temperature measurement.

139. Which thermal testing method is commonly used for monitoring the temperature of industrial processes? [A]

A) a) Infrared thermography B) b) Thermocouple measurement C) c) Thermal conductivity testing D) d) Thermal expansion testing

140. What is the primary advantage of thermocouple measurement in thermal testing? [C]

A) a) It provides a visual image of the internal structure. B) b) It can detect temperature variations in a wide area. C) c) It provides accurate and direct temperature measurement. D) d) It can measure the thermal conductivity of a material.

141. Which thermal testing method is commonly used for measuring the temperature distribution in electronic components? [A]

A) a) Infrared thermography B) b) Thermocouple measurement C) c) Thermal conductivity testing D) d) Thermal expansion testing

142. What is the primary advantage of non-destructive testing in quality control? [C]

A) a) It ensures the structural integrity of the tested components. B) b) It provides accurate and direct measurement of material properties. C) c) It reduces the cost and time associated with destructive testing. D) d) It allows for the inspection of complex shapes and structures.

143. Which non-destructive testing method is commonly used for inspecting the bond integrity in adhesive joints? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Bond strength testing

144. What is the primary advantage of non-destructive testing in maintenance and inspection? [C]

A) a) It allows for the inspection of complex shapes and structures. B) b) It provides accurate and direct measurement of material properties. C) c) It reduces the risk of catastrophic failures in equipment and structures. D) d) It can detect defects and discontinuities without damaging the material.

145. Which non-destructive testing method is commonly used for inspecting the thickness of coatings? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Coating thickness measurement

146. What is the primary advantage of non-destructive testing in defect detection? [C]

A) a) It provides accurate and direct measurement of material properties. B) b) It allows for the inspection of complex shapes and structures. C) c) It can detect defects and discontinuities without damaging the material. D) d) It reduces the risk of catastrophic failures in equipment and structures.

147. Which non-destructive testing method is commonly used for inspecting the structural integrity of bridges? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Visual inspection

148. What is the primary advantage of non-destructive testing in aerospace applications? [C]

A) a) It provides accurate and direct measurement of material properties. B) b) It allows for the inspection of complex shapes and structures. C) c) It reduces the risk of catastrophic failures in aircraft components. D) d) It can detect defects and discontinuities without damaging the material.

149. What is the primary advantage of non-destructive testing in automotive applications? [C]

A) a) It allows for the inspection of complex shapes and structures. B) b) It provides accurate and direct measurement of material properties. C) c) It reduces the risk of catastrophic failures in vehicle components. D) d) It can detect defects and discontinuities without damaging the material.

150. Which non-destructive testing method is commonly used for inspecting the weld integrity in pipelines? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

151. What is the primary advantage of non-destructive testing in manufacturing processes? [C]

A) a) It provides accurate and direct measurement of material properties. B) b) It allows for the inspection of complex shapes and structures. C) c) It reduces the risk of defective products reaching the market. D) d) It can detect defects and discontinuities without damaging the material.

152. Which non-destructive testing method is commonly used for inspecting the integrity of pressure vessels? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

153. What is the primary advantage of non-destructive testing in the energy sector? [D]

A) a) It provides accurate and direct measurement of material properties. B) b) It allows for the inspection of complex shapes and structures. C) c) It reduces the risk of catastrophic failures in power generation equipment. D) d) It can detect defects and discontinuities without damaging the material.

154. Which non-destructive testing method is commonly used for inspecting the integrity of storage tanks? [A]

A) a) Ultrasonic testing B) b) Magnetic particle testing C) c) Liquid penetrant testing D) d) Radiographic testing

155. What is the primary advantage of non-destructive testing in the oil and gas industry? [C]

A) a) It provides accurate and direct measurement of material properties.
B) b) It allows for the inspection of complex shapes and structures.
C) c) It reduces the risk of catastrophic failures in pipelines and equipment.
D) d) It can detect defects and discontinuities without damaging the material.

156. Which mode of heat transfer does not require a medium for propagation? [C]

A) a) Conduction
B) b) Convection
C) c) Radiation
D) d) All modes require a medium

157. Which NDT method is commonly used to detect surface cracks and defects in ferromagnetic materials? [C]

A) a) Liquid penetrant testing
B) b) Ultrasonic testing
C) c) Magnetic particle testing
D) d) Eddy current testing

158. What is the primary advantage of non-destructive testing in the construction industry? [C]

A) a) It provides accurate and direct measurement of material properties.
B) b) It allows for the inspection of complex shapes and structures.
C) c) It reduces the risk of structural failures in buildings and infrastructure.
D) d) It can detect defects and discontinuities without damaging the material.

159. The process of heat transfer through electromagnetic waves is known as: [C]

A) a) Conduction
B) b) Convection
C) c) Radiation
D) d) None of the above

160. Which of the following NDT techniques uses sound waves to detect flaws in materials? [B]

A) a) Liquid penetrant testing
B) b) Ultrasonic testing
C) c) Magnetic particle testing
D) d) Eddy current testing