Subject Name & Code : Unconventional Machining Processes (PEME703A)

Exam Name : Q2

1. In EBM, what type of material removal mechanism is primarily involved? [A]

A) Melting and evaporation B) Chemical dissolution C) Abrasion D) Electrolysis

2. Which of the following is a key parameter in EBM? [A]

A) Beam current B) Cutting speed C) Feed rate D) Tool hardness

3. What is the typical diameter of an electron beam used in EBM? [B]

A) 0.1 to 1 mm B) 1 to 10 microns C) 0.01 to 0.1 mm D) 10 to 100 microns

4. In EBM, what is the usual acceleration voltage range? [B]

A) 10-50 kV B) 50-200 kV C) 200-300 kV D) 300-500 kV

5. What is a common application of EBM? [C]

A) Cutting wood B) Engraving on glass C) Machining of micro-holes D) Welding of plastic parts

6. Which of the following materials is suitable for EBM? [C]

A) Plastics B) Ceramics C) Metals D) All of the mentioned

7. Which environment is necessary for EBM to operate? [B]

A) High pressure B) Vacuum C) Underwater D) Open air

8. What type of control is essential for the EBM process? [D]

A) Mechanical control B) Chemical control C) Thermal control D) Electrical control

9. What is the main advantage of EBM? [B]

A) Low initial cost B) Ability to machine extremely hard materials C) High material removal rate D) Simple setup

10. What is the fundamental principle of Laser Beam Machining? [A]

A) Thermal energy B) Electrical energy C) Mechanical energy D) Chemical energy

11. Which type of laser is commonly used in LBM? [D]

A) CO2 laser B) Diode laser C) Fiber laser D) All of the mentioned

12. What is the primary mechanism of material removal in LBM? [A]

A) Melting and vaporization B) Chemical dissolution C) Abrasion D) Electrolysis

13. Which parameter is critical in determining the quality of a laser cut? [D]

A) Beam power B) Material thickness C) Focal length D) All of the mentioned

14. In LBM, what role does the assist gas play? [B]

A) Cooling the material B) Enhancing material removal C) Increasing laser power D) Reducing thermal distortion

15. What is the typical wavelength range for a CO2 laser used in LBM? [C]

A) 400-700 nm B) 700-1000 nm C) 10.6 microns D) 1.06 microns

16. Which material is difficult to machine using LBM? [B]

A) Metals B) Ceramics C) Plastics D) Glass

17. What is a key advantage of LBM over traditional machining methods? [C]

A) Lower operational costs B) Faster material removal rates C) Higher precision D) Less power consumption

18. Which parameter influences the heat-affected zone (HAZ) in LBM? [D]

A) Beam diameter B) Cutting speed C) Beam power D) All of the mentioned

19. What is a common application of LBM? [D]

A) Cutting textiles B) Welding metals C) Engraving on glass D) All of the mentioned

20. In EBM, what causes material removal? [B]

A) Chemical reaction B) Thermal evaporation C) Mechanical abrasion D) Electrolysis

21. In LBM, what initiates the material removal process? [C]

A) Chemical etching B) Mechanical cutting C) Localized heating and melting D) Electrical discharge

22. Which phenomenon is primarily responsible for the material removal in EBM? [B]

A) Melting B) Vaporization C) Sublimation D) Condensation

23. What is the main mechanism of material removal in LBM? [B]

A) Solidification B) Melting C) Abrasion D) Oxidation

24. Which factor does NOT significantly affect the material removal rate in EBM? [C]

A) Beam current B) Beam diameter C) Workpiece hardness D) Vacuum pressure

25. What primarily affects the material removal rate in LBM? [A]

A) Beam power B) Assist gas type C) Workpiece color D) Ambient temperature

26. In EBM, what helps focus the electron beam? [A]

A) Magnetic lenses B) Optical lenses C) Mechanical guides D) Electrostatic deflectors

27. In LBM, what assists in achieving precise material removal? [D]

A) High beam divergence B) Large focal length C) Low beam power D) Narrow beam width

28. Which material property is most critical in LBM? [B]

A) Density B) Thermal conductivity C) Electrical conductivity D) Magnetic permeability

29. Which material is generally harder to machine using EBM? [D]

A) Aluminum B) Steel C) Titanium D) Copper

30. In EBM, what parameter is directly related to the penetration depth of the beam? [B]

A) Beam current B) Acceleration voltage C) Beam diameter D) Workpiece temperature

31. What is the effect of increasing beam power in LBM? [B]

A) Reduced material removal rate B) Increased material removal rate C) Decreased precision D) Increased beam divergence

32. Which parameter is adjusted to control the beam focus in EBM? [B]

A) Beam current B) Magnetic lens strength C) Workpiece distance D) Ambient pressure

33. In LBM, what happens if the focal point is too far above the workpiece surface? [C]

A) Improved cutting speed B) Increased HAZ C) Decreased precision D) Reduced beam intensity

34. Which parameter primarily affects the kerf width in LBM? [C]

A) Beam power B) Beam speed C) Beam diameter D) Assist gas pressure

35. In EBM, what effect does increasing the beam current have? [B]

A) Decreases material removal rate B) Increases material removal rate C) Reduces thermal distortion D) Decreases penetration depth

36. What is the impact of using a higher acceleration voltage in EBM? [C]

A) Larger beam spot size B) Higher material removal rate C) Deeper penetration D) Reduced thermal distortion

37. In LBM, what does a higher beam power density result in? [B]

A) Larger HAZ B) Higher precision cuts C) Slower cutting speed D) Increased surface roughness

38. Which industry commonly uses EBM for micro-machining? [B]

A) Textile B) Aerospace C) Automotive D) Agriculture

39. In which application is LBM predominantly used? [C]

A) Cutting wood B) Welding plastic parts C) Engraving metals D) Drilling holes in ceramics

40. What is the basic principle of Electron Beam Machining? [A]

A) Thermal energy B) Electrical energy C) Mechanical energy D) Chemical energy

41. What is the primary purpose of plasma arc machining? [B]

A) Welding B) Metal cutting C) Surface coating D) Annealing

42. In plasma arc machining, the plasma is formed by: [A]

A) High-frequency electrical discharge B) Laser beam C) Chemical reaction D) Magnetic field induction

43. Which of the following metals can be effectively cut using plasma arc machining? [C]

A) Copper B) Aluminum C) Stainless steel D) Lead

44. The metal removal mechanism in plasma arc machining is primarily due to: [A]

A) Melting and vaporization B) Chemical dissolution C) Mechanical abrasion D) Electromagnetic induction

45. Process parameters in plasma arc machining include: [A]

A) Voltage and current B) Temperature and pressure C) pH and viscosity D) Density and viscosity

46. What is the typical temperature range achieved in plasma arc machining? [B]

A) 500-1000°C B) 1000-5000°C C) 100-500°C D) Below 100°C

47. The accuracy of plasma arc machining is primarily influenced by: [C]

A) Electrode material B) Gas flow rate C) Power supply stability D) Workpiece hardness

48. Which surface finishing process is typically used after plasma arc machining? [D]

A) Sandblasting B) Electroplating C) Shot peening D) Polishing

49. Plasma arc machining is commonly used for which of the following applications in manufacturing industries? [B]

A) Semiconductor fabrication B) Aircraft engine components C) Food processing equipment D) Textile machinery parts

50. Which gas is commonly used in plasma arc machining for non-oxidizing environments? [C]

A) Oxygen B) Nitrogen C) Argon D) Hydrogen

51. What is the advantage of using plasma arc machining over traditional machining methods? [A]

A) Higher material removal rate B) Lower equipment cost C) Better surface finish D) Less environmental impact

52. Which of these factors does not affect the plasma arc machining process? [D]

A) Gas pressure B) Electrode material C) Workpiece geometry D) Ambient humidity

53. Plasma arc machining can achieve which of the following accuracies? [A]

A) ±0.01 mm B) ±1 mm C) ±10 mm D) ±100 mm

54. Which industry commonly uses plasma arc machining for precision cutting of thick materials? [C]

A) Automotive B) Jewelry C) Shipbuilding D) Agriculture

55. The primary limitation of plasma arc machining is: [A]

A) High operating costs B) Limited material compatibility C) Environmental hazards D) Low cutting speed

56. Which parameter primarily determines the depth of cut in plasma arc machining? [C]

A) Gas flow rate B) Cutting speed C) Power density D) Workpiece temperature

57. Plasma arc machining is effective in cutting which of the following materials? [A]

A) Ceramics B) Wood C) Rubber D) Paper

58. Which characteristic of plasma arc machining makes it suitable for cutting intricate shapes? [D]

A) Uniform heat distribution B) Low thermal conductivity C) High cutting speed D) Non-contact operation

59. Plasma arc machining can produce which type of surface finish? [A]

A) Matte B) Glossy C) Rough D) Polished

60. Which of the following is not an advantage of using plasma arc machining? [D]

A) High cutting speed B) Low tool wear C) Minimal heat-affected zone D) Limited material thickness

61. What safety measure is crucial when operating plasma arc machining equipment? [A]

A) Grounding the workpiece B) Increasing gas pressure C) Lowering power supply voltage D) Decreasing coolant flow

62. Which industry benefits most from plasma arc machining due to its precision and versatility? [B]

A) Construction B) Medical devices C) Furniture D) Packaging

63. Plasma arc machining is most effective for cutting which of the following materials? [D]

A) Glass B) Fabric C) Polymer D) Titanium

64. Which parameter directly affects the plasma arc diameter and cutting precision? [B]

A) Gas flow rate B) Electrode diameter C) Workpiece temperature D) Ambient pressure

65. Which characteristic of plasma arc machining improves energy efficiency during cutting? [B]

A) High gas consumption B) Low power consumption C) Fast cutting speed D) Long electrode life

66. Plasma arc machining is not suitable for which of the following applications? [D]

A) Sculpture making B) Circuit board manufacturing C) Jewelry crafting D) Food processing

67. Which gas is used in plasma arc machining for oxidizing applications? [C]

A) Argon B) Helium C) Oxygen D) Nitrogen

68. Which factor does not significantly affect the accuracy of plasma arc machining? [C]

A) Gas purity B) Electrode wear C) Cutting speed D) Workpiece hardness

69. Plasma arc machining is advantageous in which of the following manufacturing processes? [C]

A) Injection molding B) 3D printing C) Laser cutting D) CNC milling

70. The primary benefit of using plasma arc machining over traditional machining methods is: [A]

A) Lower cost per part B) Higher material compatibility C) Faster setup time D) Improved tool life

71. Which parameter is critical for achieving fine detail in plasma arc machining? [B]

A) Gas flow direction B) Plasma torch angle C) Electrode material D) Cutting speed

72. Plasma arc machining is commonly used for which aspect of aircraft manufacturing? [D]

A) Fuselage assembly B) Wing design C) Avionics installation D) Landing gear fabrication

73. Which characteristic of plasma arc machining contributes to its suitability for cutting reflective materials? [D]

A) High cutting speed B) Low thermal conductivity C) Non-oxidizing atmosphere D) Precise heat control

74. What is a critical safety consideration when operating plasma arc machining equipment? [B]

A) High-frequency noise B) UV radiation exposure C) Static electricity buildup D) Magnetic field interference

75. Plasma arc machining is effective for cutting which of the following materials used in aerospace applications? [A]

A) Carbon fiber composites B) Thermoplastics C) Rubber seals D) Epoxy resins

76. Which parameter directly affects the hardness of the heat-affected zone in plasma arc machining? [C]

A) Cutting speed B) Gas flow rate C) Power density D) Electrode material

77. Plasma arc machining can achieve which of the following surface finishes? [D]

A) Polished B) Matte C) Glossy D) Textured

78. Which characteristic of plasma arc machining makes it suitable for cutting intricate patterns in metal artwork? [C]

A) High material removal rate B) Low tool wear C) Fine detail capability D) Minimal heat generation

79. Plasma arc machining is used in which stage of semiconductor manufacturing? [A]

A) Wafer fabrication B) Chip packaging C) Device testing D) System integration

80. Which factor is not a primary consideration for selecting plasma arc machining over laser cutting? [C]

A) Cost-effectiveness B) Cutting speed C) Material thickness D) Surface finish

81. What is the primary application of ion beam machining (IBM)? [C]

A) Surface coating B) Metal cutting C) Etching and milling D) Welding

82. In ion beam machining, the ions used for material removal are typically derived from which gas? [C]

A) Nitrogen B) Helium C) Argon D) Oxygen

83. Which of the following materials can be effectively processed using ion beam machining? [C]

A) Wood B) Plastics C) Silicon D) Rubber

84. The metal removal mechanism in ion beam machining primarily involves: [C]

A) Chemical reaction B) Mechanical abrasion C) Melting and sputtering D) Electrochemical dissolution

85. Process parameters in ion beam machining include: [B]

A) Voltage and current B) Beam energy and current density C) Gas pressure and flow rate D) Temperature and humidity

86. What is a typical range of beam energies used in ion beam machining? [B]

A) 10-100 eV B) 100-1000 eV C) 1000-10,000 eV D) 10,000-100,000 eV

87. The accuracy of ion beam machining is primarily influenced by: [A]

A) Beam spot size B) Beam composition C) Gas purity D) Magnetic field strength

88. Which surface finishing process is often combined with ion beam machining for high precision applications? [B]

A) Sandblasting B) Polishing C) Anodizing D) Shot peening

89. Ion beam machining is advantageous for which of the following reasons? [C]

A) Low material removal rate B) High tool wear resistance C) Non-contact operation D) Limited material compatibility

90. Which industry commonly uses ion beam machining for microfabrication of intricate patterns? [C]

A) Automotive B) Aerospace C) Electronics D) Construction

91. What is the main limitation of ion beam machining compared to other machining processes? [B]

A) High operational cost B) Limited material thickness C) Environmental hazards D) Low accuracy

92. Which parameter primarily determines the material removal rate (MRR) in ion beam machining? [A]

A) Beam current B) Beam energy C) Gas pressure D) Workpiece temperature

93. Ion beam machining can achieve which of the following accuracies? [B]

A) ±1 mm B) ±10 µm C) ±100 µm D) ±1 mm

94. Which characteristic of ion beam machining makes it suitable for precision machining of optical components? [B]

A) Low thermal conductivity B) Non-thermal process C) High material removal rate D) Environmental friendliness

95. The primary advantage of ion beam machining over traditional methods is: [C]

A) Higher cutting speed B) Lower equipment cost C) Better surface finish D) Reduced energy consumption

96. Which of the following is not a typical application of ion beam machining? [D]

A) Semiconductor manufacturing B) Medical implants C) Jewelry making D) Automotive parts

97. Ion beam machining is effective for which aspect of semiconductor device fabrication? [A]

A) Wafer cleaning B) Die bonding C) Wire bonding D) Lithography

98. Which factor does not significantly affect the accuracy of ion beam machining? [C]

A) Beam stability B) Workpiece hardness C) Ambient temperature D) Beam profile

99. Ion beam machining is advantageous in which of the following manufacturing processes? [D]

A) Injection molding B) Additive manufacturing C) Electrochemical machining D) Precision optics

100. What safety measure is crucial when handling ion beam machining equipment? [B]

A) Electrostatic discharge protection B) UV radiation shielding C) Magnetic field isolation D) Heat insulation

101. Which industry benefits most from ion beam machining due to its ability to handle delicate materials? [B]

A) Aerospace B) Biomedical C) Heavy machinery D) Textile

102. Ion beam machining is used for which aspect of biomedical device manufacturing? [A]

A) Implant surface treatment B) Prosthetic limb fabrication C) Surgical instrument production D) Hospital furniture manufacturing

103. Which parameter directly affects the surface roughness in ion beam machining? [A]

A) Beam energy B) Gas flow rate C) Workpiece temperature D) Ambient humidity

104. Ion beam machining can achieve which type of surface finishes? [D]

A) Matte B) Glossy C) Textured D) Polished

105. Which characteristic of ion beam machining contributes to its suitability for cutting brittle materials? [B]

A) Low tool wear B) Non-thermal process C) High material removal rate D) Fast cutting speed

106. Ion beam machining is not suitable for which of the following materials due to its processing characteristics? [D]

A) Ceramics B) Plastics C) Composites D) Metals

107. Which gas is commonly used in ion beam machining for enhanced material removal rates? [A]

A) Argon B) Helium C) Oxygen D) Nitrogen

108. What is a critical advantage of ion beam machining in microelectronics manufacturing? [C]

A) High material removal rate B) Non-contact operation C) Sub-micron precision D) Low operational cost

109. Ion beam machining is effective for which aspect of nanotechnology research? [B]

A) Nanoparticle synthesis B) Nanostructure fabrication C) Nanofluidic device manufacturing D) Nanotube assembly

110. Which parameter is crucial for achieving precise control over ion beam machining process depth? [B]

A) Gas flow direction B) Beam current density C) Workpiece composition D) Beam spot size

111. Ion beam machining is commonly used in which aspect of optics manufacturing? [C]

A) Lens grinding B) Prism polishing C) Mirror coating D) Filter assembly

112. Which characteristic of ion beam machining makes it suitable for cutting heat-sensitive materials? [D]

A) High cooling efficiency B) Low thermal conductivity C) Non-oxidizing atmosphere D) Precise heat control

113. What is a critical limitation of ion beam machining in terms of industrial scalability? [B]

A) Limited material compatibility B) High operational cost C) Low cutting speed D) Environmental hazards

114. Which parameter is crucial for optimizing ion beam machining efficiency in high-volume production? [D]

A) Beam divergence B) Gas flow rate C) Workpiece alignment D) Beam current density

115. In which machining process is a high-velocity stream of abrasive particles used to remove material? [A]

A) Abrasive Jet Machining (AJM) B) Water Jet Machining (WJM) C) Abrasive Water Jet Machining (AWJM) D) Electrochemical Machining (ECM)

116. What is the primary purpose of adding abrasives to the jet stream in AJM and AWJM? [C]

A) To increase material hardness B) To improve surface finish C) To enhance cutting speed D) To reduce tool wear

117. Which equipment is essential for Abrasive Jet Machining (AJM)? [A]

A) Abrasive feeder and mixing chamber B) High-pressure pump C) Nozzle and abrasive reservoir D) Magnetic chuck

118. In Water Jet Machining (WJM), what is used to pressurize the water before it exits the nozzle? [A]

A) Compressed air B) Hydraulic fluid C) Electric motor D) Pneumatic system

119. What is the primary process variable that affects material removal rate (MRR) in AJM? [A]

A) Abrasive particle size B) Nozzle diameter C) Water pressure D) Workpiece material hardness

120. Which mechanism of material removal is predominant in Abrasive Jet Machining (AJM)? [B]

A) Chemical dissolution B) Mechanical erosion C) Thermal evaporation D) Electrochemical reaction

121. Abrasive Water Jet Machining (AWJM) combines which aspects of AJM and WJM? [B]

A) Abrasive particle size control B) High-pressure water jet C) Nozzle design optimization D) Material compatibility enhancement

122. What is a critical limitation of Abrasive Jet Machining (AJM) compared to other machining methods? [A]

A) Limited material thickness B) High operational cost C) Low accuracy D) Environmental hazards

123. Which application is suitable for Water Jet Machining (WJM) due to its non-thermal process? [C]

A) Metal cutting B) Composite machining C) Glass shaping D) Ceramic sintering

124. What is a critical advantage of Abrasive Water Jet Machining (AWJM) over traditional machining methods? [B]

A) Lower equipment cost B) Improved surface finish C) Higher material removal rate D) Reduced environmental impact

125. Which process variable directly influences the kerf width in Water Jet Machining (WJM)? [B]

A) Abrasive concentration B) Nozzle distance C) Traverse speed D) Water pressure

126. What is a critical limitation of Abrasive Water Jet Machining (AWJM) in terms of precision? [D]

A) Limited material compatibility B) High operational noise C) Poor surface integrity D) Kerf tapering

127. Which type of material is commonly machined using Abrasive Jet Machining (AJM)? [C]

A) High-strength steel B) Aluminum alloy C) Hardened ceramics D) Soft plastics

128. What is a critical safety consideration in Water Jet Machining (WJM) operations? [B]

A) Abrasive particle inhalation B) High-pressure water leakage C) Electrical shock hazard D) Thermal burns from heat generation

129. Which parameter is crucial for optimizing material removal rate (MRR) in Abrasive Water Jet Machining (AWJM)? [A]

A) Abrasive flow rate B) Water temperature C) Nozzle diameter D) Ambient humidity

130. What is a typical range of nozzle diameters used in Water Jet Machining (WJM)? [C]

A) 0.1-0.5 mm B) 0.5-1 mm C) 1-3 mm D) 3-5 mm

131. Which industry commonly utilizes Abrasive Water Jet Machining (AWJM) for precision cutting of composite materials? [B]

A) Automotive B) Aerospace C) Electronics D) Construction

132. What is a critical advantage of Abrasive Jet Machining (AJM) in microelectronics manufacturing? [B]

A) High material removal rate B) Non-contact operation C) Sub-micron precision D) Low operational cost

133. Which characteristic of Water Jet Machining (WJM) makes it suitable for cutting heat-sensitive materials? [D]

A) High cooling efficiency B) Low thermal conductivity C) Non-oxidizing atmosphere D) Precise heat control

134. Which parameter is crucial for achieving precise control over abrasive concentration in Abrasive Water Jet Machining (AWJM)? [C]

A) Nozzle design B) Pump pressure C) Abrasive recycling system D) Workpiece alignment

135. What is a critical limitation of Abrasive Jet Machining (AJM) in terms of environmental impact? [B]

A) Noise pollution B) Dust emissions C) Chemical runoff D) Energy consumption

136. Which parameter primarily affects the depth of cut in Abrasive Water Jet Machining (AWJM)? [A]

A) Nozzle standoff distance B) Abrasive particle size C) Water flow rate D) Workpiece hardness

137. Abrasive Water Jet Machining (AWJM) is effective for which aspect of renewable energy component manufacturing? [A]

A) Wind turbine blades B) Solar panel frames C) Hydroelectric dam parts D) Geothermal heat exchangers

138. Which characteristic of Abrasive Jet Machining (AJM) makes it suitable for intricate pattern cutting in jewelry making? [D]

A) Low tool wear B) High material compatibility C) Non-thermal process D) Fine abrasive control

139. What is a critical advantage of Water Jet Machining (WJM) in the food processing industry? [A]

A) Non-contact operation B) High cutting speed C) Reduced material waste D) Enhanced surface finish

140. Which process variable directly influences the cutting efficiency of Abrasive Water Jet Machining (AWJM)? [C]

A) Abrasive type B) Water purity C) Pump pressure D) Ambient temperature

141. What is a typical range of abrasive particle sizes used in Abrasive Jet Machining (AJM)? [C]

A) 10-50 µm B) 50-100 µm C) 100-300 µm D) 300-500 µm

142. Which industry commonly uses Water Jet Machining (WJM) for cutting soft materials such as foam and rubber? [B]

A) Automotive B) Packaging C) Medical devices D) Textile

143. What is a critical limitation of Abrasive Water Jet Machining (AWJM) in terms of surface finish? [D]

A) Poor edge quality B) High surface roughness C) Limited material compatibility D) Kerf tapering

144. Which parameter is crucial for reducing abrasive consumption in Abrasive Jet Machining (AJM)? [B]

A) Nozzle design optimization B) Abrasive recycling system C) High-pressure pump efficiency D) Workpiece clamping mechanism

145. Abrasive Water Jet Machining (AWJM) is advantageous for which aspect of composite material fabrication? [B]

A) Resin curing B) Laminate cutting C) Filler mixing D) Molding

146. Which characteristic of Abrasive Jet Machining (AJM) limits its application in high-precision microelectronics? [D]

A) Limited material compatibility B) High tool wear C) Environmental hazards D) Kerf tapering

147. What is a critical safety consideration in Abrasive Water Jet Machining (AWJM) operations? [A]

A) High-pressure water leakage B) Abrasive particle inhalation C) Electrical shock hazard D) Thermal burns from heat generation

148. Which process variable significantly affects the accuracy of Abrasive Jet Machining (AJM)? [B]

A) Abrasive flow rate B) Nozzle diameter C) Workpiece thickness D) Ambient humidity

149. Abrasive Water Jet Machining (AWJM) is effective for which aspect of architectural stone cutting? [A]

A) Facade detailing B) Structural block shaping C) Decorative engraving D) Column molding

150. Which parameter is crucial for optimizing surface finish in Water Jet Machining (WJM)? [A]

A) Nozzle traverse speed B) Abrasive particle velocity C) Water jet temperature D) Workpiece orientation

151. What is a critical limitation of Abrasive Jet Machining (AJM) in terms of geometric accuracy? [C]

A) Kerf width variation B) Edge chipping C) Corner radiusing D) Surface waviness

152. Which industry commonly uses Abrasive Water Jet Machining (AWJM) for cutting thick metal sections? [B]

A) Automotive B) Shipbuilding C) Electronics D) Furniture

153. What is a critical advantage of Abrasive Jet Machining (AJM) in ceramic machining? [B]

A) High cutting speed B) Non-thermal process C) Low material waste D) Improved surface integrity

154. Which parameter is crucial for achieving high precision in Abrasive Water Jet Machining (AWJM)? [A]

A) Nozzle standoff distance B) Abrasive particle size C) Water flow rate D) Workpiece hardness

155. Abrasive Jet Machining (AJM) is suitable for which aspect of electronic device manufacturing? [A]

A) Circuit board etching B) Semiconductor wafer dicing C) Microcontroller programming D) Battery cell assembly

156. What is a critical limitation of Water Jet Machining (WJM) in terms of material versatility? [A]

A) Limited material thickness B) High operational cost C) Environmental hazards D) Low cutting speed

157. Which parameter significantly affects the surface roughness in Abrasive Water Jet Machining (AWJM)? [B]

A) Nozzle diameter B) Abrasive concentration C) Water pressure D) Workpiece material hardness

158. Water Jet Machining (WJM) is effective for which aspect of glass cutting? [A]

A) Window pane shaping B) Stained glass engraving C) Mirror finishing D) Optical lens polishing

159. What is a critical safety consideration in Abrasive Jet Machining (AJM) operations? [A]

A) Abrasive particle inhalation B) High-pressure water leakage C) Electrical shock hazard D) Thermal burns from heat generation

160. Which parameter is crucial for optimizing abrasive consumption in Abrasive Water Jet Machining (AWJM)? [C]

A) Nozzle design B) Pump pressure C) Abrasive recycling system D) Workpiece alignment