

20. All of the following are advantages of hybrid light cured ionomers EXCEPT

- a. esthetics
- b. bond strength
- c. wear resistance
- d. coefficient of thermal expansion

21. Impression material with least tear resistance

- a. rubber base
- b. irreversible hydrocolloid
- c. reversible hydrocolloid

22. With insufficient light cure, which part of the restoration will remain soft (under polymerized)?

- a. external surface beneath light
- b. core of composite
- c. axial wal

23. In the dental office, bleaching changes the shade by all EXCEPT-

- a. etching the tooth
- b. dehydration
- c. oxidation of colorants
- d. surface demineralization

24. Which statement is correct regarding the degree of polymerization of methyl methacrylate in denture base acrylic resin?

- a. no residual monomer exists after processing a heat activated acrylic resin at 165° for 8 hours
- b. more residual monomer exists in a denture that is processed by chemical activation than by heat activation
- c. residual monomer in a denture can only be eliminated by raising the temperature to 212° for 1 hour after processing.

25. Which of the following describes chroma as it relates to the dimensions of color?

- a. wavelength of the light reaching the eye

- b. saturation or concentration of color
- c. relative lightness or darkness of a color

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27. How is scrap amalgam stored?

- a. under water
- b. under sulfide
- c. glycerin

28. Side effect of interaction with mercury

- a. xerostomia
- b. slurred speech
- c. nausea
- d. glaucoma

29. Which metal is added to amalgam to prevent expansion?

- a. chromium
- b. nickel
- c. zinc
- d. cobalt
- e. silver

30. The most rigid gold that is used for fixed bridge construction is

- a. Class II
- b. Class III
- c. Class IV
- d. Class I

31. To decrease foveal fatigue in shade matching, what should you do?

- a. look for less than 5 minutes

- b. wet the tooth
- c. place color samples next to tooth
- d. match in northern light

32. What is the function of opaque layer?

- a. 0.1mm
- b. 0.2mm
- c. 0.3mm

33. What is the cement of choice for composite inlays?

- a. zinc oxyphosphate
- b. polycarboxylate
- c. resin cement

34. What best describes porcelain?

- a. Low compressive strength
- b. High tensile strength
- c. Biocompatible
- d. High impact strength

35. An alloplastic material like titanium is used for osseointegrated implants. A fibrous tissue usually forms between the implant bone.

- a. both statements are false
- b. only the second statement is false
- c. first statement is true the second statement is false
- d. only the first statement is true

36. Each of the following is better in a resin based glass ionomer than water based glass ionomer except

- a. fluoride leaching
- b. adhesion
- c. polishing
- d. bond strength
- e. longevity

37. Which of the following is the composition of water based glass ionomer?

- a. zinc oxide powder and poly acrylic

acid

- b. aluminosilicate glass and poly acrylic acid
- c. aluminosilicate glass and poly acrylic acid
- d. zinc oxide powder and poly carboxylic acid

38. You can decrease the strength of zing oxide eugenol cement by adding

- a. ethoxybenzoic acid
- b. acrylic
- c. petrolatum
- d. cotton

39. When adding more powder to a liquid with a zinc oxide eugenol cement the inix will

- a. retard set
- b. set harder
- c. hasten set
- d. set so

40. With insufficient light cure, which area is softer (under polymerized)?

- a. core of composite
- b. superficial surface beneath the light source
- c. axial or pupal wall

41. All of the following are advantages of an indirect composite inlay over conventional composite inlay

- a. increased abrasion resistance
- b. harder material
- c. shrinkoji occur before placement
- d. b

42. Which is the best treatment for mottling of enamel?

- a. micro-abrasion
- b. In-office bleaching
- c. home bleaching
- d. root cana

43. Which of the following is not recommended under a composite?

- a. zinc phosphate
- b. glass ionomer
- c. zoe
- d. calcium hydroxide

44. Zoe is a good temporary restoration because

- a. less irritant
- b. increased strength
- c. good seal
- d. antibacter

45. What is the name for the phenomena of porcelain appearing different under different lights?

- a. fluorescence
- b. incandescence
- c. metamerism
- d. isomeris

46. Where is the gold directed on an MO onlay sprue?

- a. faces pulpal axial line angle
- b. occlusal floor
- c. pulpal floor
- d. gingival floor

47. What is the minimum thickness of porcelain to prevent fracture of the porcelain?

- a. 2 mm.
- b. 3 mm.
- c. 4 mm.
- d. 6 mm.

48. What is the impression material with the best dimensional stability 24 after taking the impression?

- a. polyvinyl siloxane
- b. reversible colloid
- c. irreversible colloid

49. Bonding on a tooth does all the following except
- chemical bonding
 - mechanical bonding
 - increase surface area
50. Immediately after cementing a full cast gold crown, the patient complains of a shooting pain every time the opposing teeth touch because of
- galvanic current
 - microleakage
 - hyper-occlusion of the crown
 - excess acid in cement
51. When placing a ceramic veneer you are required to
- etch the fitting surface of the veneer
 - resin cement on veneer
 - a and b
52. When having difficulty matching the colors of adjacent teeth for a bridge, select a shade that is
- lower color saturation and less gray
 - higher color saturation and less gray
 - higher color saturation and more gray
 - lower color saturation and more gray
53. The most likely cause of porcelain fracturing on a bridge constructed from teeth # 5 through 11 is
- bending of metal
 - inter arch distance as a result of soldering
 - soldering in section
 - incorporating a premolar tooth
54. Formula given for a cutting instrument. One of the numbers asked If three numbers are given First =width of blade =primary cutting edge is given in tenth of a mm Second number= blade length in mm Third number= blade angle relative to long axis If four numbers are given First number= width of blade Second=primary cutting edge angle Fourth=blade angle relative to long axis
55. What is the composition of a composite?

Matrix=BisGMA Filler particles=quartz and silicate. Coupling agent=silane
The primate space is found

- a. in the mandible between the canine and the first deciduous molar and in the maxilla between the lateral and the canine teeth
- b. in the maxilla between the canine and first deciduous molar and in the mandible between the lateral and the canine teeth

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57. For adequate curing of composite what wave length do you need

- a. 275- 375
- b. 400 to 475
- c. 500 to 600
- d. 600 to 700

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Matrix=BisGMA filler particles=quartz and silicate. Coupling agent= silane

59. What is the cement choice for composite inlays?

- a. zinc phosphate
- b. resin cements
- c. polycarboxylate

60. When do you clean the zinc phosphate cement from crown margins?

- a. immediately after cementation
- b. after the cement is completely set
- c. 24 hours after cementation
- d. one week after cementation

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62. Which component of amalgam will cause contraction?

- a. copper
- b. tin
- c. zinc
- d. silver

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- a. no residual monomer exists after processing a heat activated acrylic resin at 165° for 8 hours
- b. more residual monomer exists in a denture that is processed by chemical activation than by heat activation
- c. residual monomer is of little concern because allergies to it have not been observed
- d. residual monomer in a denture can only be eliminated by raising the temperature to 212° for 1 hour after processing

68. Which of the following describes chroma as it relates to the dimensions of color?

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- b. slurred speech
- c. nausea
- d. glaucoma

72. which of the following procedures is indicated to produce crosslinking during polymerization of a linear polymer?

- a. add grain-refining agents
- b. add dysfunctional monomers
- c. increase the heat for linear polymerization
- d. incorporate terminators in the monomer

73. The greatest potential hazard of chronic mercury toxicity comes from

- a. skin contact with mercury
- b. inhalation of mercury vapor
- c. amalgam restorations in a patient
- d. ingestion of amalgam scrap during removal of an old restoration

74. Many instruments have three measurements in their formulas. The number 12 in formula 12-5-6 indicates that the blade is

- a. 0.12 mm. in width

- b. 1.2 mm. in width
- c. 1.2 mm. in length
- d. at a 12° angle with the shaft

75. The 8% racemic epinephrine-containing cord for tissue management during cast gold procedures may prove hazardous for some patients because of its

- a. local caustic action on gingival tissues
- b. systemic vasoconstricting action
- c. propensity for allergic response
- d. bradycardia effect

76. Which of the following describes a material with high compressive strength but low tensile strength?

- a. tough
- b. brittle
- c. ductile
- d. malleable
- e. resilient

77. The strength of dental investments for gold alloys is dependent upon the amount of

- a. silica
- b. carbon
- c. copper
- d. gypsum

78. The property of amalgam that makes it undesirable to bevel occlusal margins of an amalgam cavity preparation is its

- a. flow
- b. ductility
- c. brittleness
- d. malleability
- e. high edge strength

79. Which of the following dental materials is easily confused with caries when viewed radiographically?

- a. zinc oxide-eugenol
- b. zinc phosphate cement
- c. polycarboxylate cement
- d. calcium hydroxide, U.S.P

80. Which of the following material has the longest shelf-life?
- silicone
 - polyether
 - polysulfide
 - polysiloxane
 - reversible hydrocolloid
81. According to microleakage studies, which of the following restorative materials shows the best initial seal when placed in a cavity preparation, and thereby protects the pulp from the effects of microleakage?
- dental amalgam
 - unfilled resin
 - direct filling gold
 - glass ionomer cement
 - acid-etched composite resin
82. Which of the following components could replace eugenol in a zinc oxide paste?
- oil of cloves
 - acetic acid
 - alginic acid
 - carboxylic acid
 - ortho-ethoxybenzoic acid
83. Which of the following chemical phenomena is common to zinc oxide-eugenol and polycarboxylate cements?
- chelation
 - crosslinking
 - esterification
 - saponification
 - copolymerization
84. Glass ionomer cements are composed of
- zinc oxide powder and polycarboxylic
 - zinc oxide powder and phosphoric acid liquid
 - aluminosilicate powder and phosphoric acid liquid
 - aluminosilicate powder and polycarboxylic liquid
85. On a carbide bur, a greater number of cutting blades results in

- a. less efficient cutting and a smoother surface
 - b. less efficient cutting and a rougher surface
 - c. more efficient cutting and a smoother surface
 - d. more efficient cutting and a rougher surface
86. Improved zinc oxide-eugenol materials serve as good temporary restorations pending placement of a permanent restoration because they
- a. have excellent marginal
 - b. have a therapeutic palliative effect on the dental pulp
 - c. have thermal insulation qualities comparable to those of dentin
 - d. maintain opposing and adjacent teeth in their respective positions
 - e. all of the above
87. In constructing a custom tray to use with polysulfide rubber material, the thickness of the rubber should be even throughout to allow for
- a. shrinkage
 - b. expansion
 - c. dimensional accuracy
 - d. ease of handling the tray
88. Examination of a patient with a hypersensitive tooth reveals an obviously leaking temporary restoration that, when removed, discloses a good cavity preparation of average depth with no carious debris and no pulpal exposure. Suspecting a possible hyperemic pulp, the dentist should place an anodyne dressing of
- a. zinc oxide-eugenol
 - b. zinc phosphate cement
 - c. a varnish followed by zinc oxide-eugenol
 - d. a varnish followed by zinc phosphate cement
 - e. calcium hydroxide followed by zinc phosphate cement
89. The thickness of a good class II matrix should be approximately
- a. 0.5 mm.
 - b. 0.002 mm.
 - c. 0.002 inches
 - d. 0.0002 inches
90. Which of the following defects in casting may be prevented by vacuum investing?

- a. air bubbles
- b. back pressure porosity
- c. fracture of the investment
- d. localized shrinkage porosity

- 1. a, and b
- 2. a, and c
- 3. a and d
- 4. b, and c
- 5. c, and d
- 6. all of the above

91. Dental sealants generally are comprised of

- a. Bis-GMA
- b. Glass ionomer
- c. Phosphoric acid
- d. High filler content
- e. Methyl methacrylate resin

- 1. a only
- 2. a and b
- 3. a, c and d
- 4. a and d only
- 5. d and e
- 6. e only

92. Which properties enable composite resins to be placed by the bulk technique with achievement and maintenance of reasonably good adaption to cavity walls?

- a. low viscosity of the mix
- b. high water sorption
- c. low polymerization shrinkage
- d. low coefficient of thermal expansion

- 1. a and b
- 2. a and c
- 3. b and d
- 4. c and d
- 5. all of the above

93. Materials contraindicated for placement under and in contact with a composite resin include

- a. varnish

- b. calcium hydroxide
- c. zinc oxide-eugenol
- d. zinc phosphate cement

- 1. a and b only
- 2. a, b, and c
- 3. a, b and d
- 4. a and c only
- 5. b and c only
- 6. b, c and d
- 7. c and d only

94. Prolonged vigorous mixing of zinc phosphate powder into the liquid on a cooled slab promotes a higher powder-liquid ratio and a superior cementation medium by providing a

- a. higher viscosity
- b. lower viscosity
- c. weaker final set
- d. stronger final set
- e. higher solubility of set cement
- f. lower solubility of set cement

- 1. a, c and f
- 2. a, d, and e
- 3. a, d, and f
- 4. b, d and e
- 5. b, d and f

95. Compared with zinc phosphate cement, polycarboxylate cement

- a. has lower compressive strength
- b. has equivalent tensile strength
- c. elicits less pulp response
- d. can bond to tooth structure

- 1. a and c
- 2. b and d
- 3. c and d
- 4. all of the above

96. In addition to maintaining a dry field, the rubber dam functions to

- a. retract soft tissue
- b. protect the patient
- c. protect the operator

- d. save time
- e. improve access

- 1. a, b, and c
- 2. a, b, and e
- 3. a, c and d
- 4. b, c and d
- 5. b, d and e
- 6. c, d and e
- 7. all of the above

97. Incorporating additional moisture during mixing will accelerate the set of

- a. plaster
- b. polyether
- c. polysulfide impression material
- d. a zinc oxide-eugenol impression paste
- e. an irreversible hydrocolloid impression

- 1. a and c
- 2. a and d
- 3. b and c
- 4. b and d
- 5. b and e
- 6. c and d
- 7. d and e

98. Moisture contaminated zinc-containing amalgam manifests

- a. grossly delayed expansion
- b. higher setting expansion
- c. reduced compressive strength
- d. an increase in the amount of gamma phase

- 1. a and b
- 2. a and c
- 3. a and d
- 4. b and c
- 5. b and d
- 6. c and d

99. An unfilled Bis-GMA glazing resin may be used on the surface of a polymerized composite restoration because unfilled Bis-GMA glazing resin

- a. seals the margins
- b. builds the final contour

- c. imparts color to the restoration
- d. smoothes the surface of the restoration
- e. attaches the restoration to the tooth structure to prevent loss of the restoration

- 1. a, b and c
- 2. a, c and d
- 3. a, c and e
- 4. a and d only
- 5. b and c
- 6. b, d and e

100. The strength of a soldered connector of a fixed partial denture is best enhanced by

- a. using a higher carat solder
- b. increasing its height
- c. increasing its width
- d. increasing the gap

101. Calcium hydroxide is generally the material-of-choice in vital pulp capping because it

- a. is less irritating to the pulp
- b. encourages dentin bridge formation
- c. seals the cavity better than most other materials

102. A composite restoration is wider than the diameter of the light tip of the curing unit. In this situation, the restoration is cured by

- a. moving the tip over the surface for the required time
- b. placing the tip stepwise over each area and exposing each area for the required time
- c. positioning the tip far enough from the surface to illuminate the entire surface
- d. centering the tip on the surface and curing the entire restoration from this position

103. A removable partial denture made of a base metal alloy is resistant to tarnish and corrosion because of its

- a. high hardness
- b. surface oxide layer
- c. noble metal content
- d. grain structure

104. To ensure better thermal and protective insulation of the pulp during a capping procedure, calcium hydroxide should be
- applied to a thickness of 3.0 mm.
 - placed in all cavity preparations
 - covered with a stronger base
 - preceded by application of a cavity varnish
 - preceded by application of a zinc phosphate cement
105. The copal resin varnish that is placed in the cavity preparation before the amalgam is condensed provides
- sealing the margins for the lifetime of the restoration
 - long-term sealing of several years duration
 - short-term sealing of the margins
 - no sealing of the margins
106. A patient presents with numerous carious lesions. To restore these lesions, the dentist will place composite resins and use visible-light curing unit. The patient's history of which of the following will necessitate that the dentist take extra precautions when using this unit?
- cataract removal
 - myopia
 - glaucoma
107. Which of the following describes a material with high compressive strength but low tensile strength?
- tough
 - brittle
 - ductile
 - malleable
 - resilient
108. Which of the following syringe materials is the most rigid and, therefore, the most difficult to remove from the mouth?
- polyether
 - polysulfide
 - addition silicone
 - condensation silicone
 - reversible hydrocolloid
109. Each of the following describes the properties of improved zinc oxide-eugenol materials EXCEPT one. Which one is this EXCEPTION?

- a. they provide an excellent marginal seal
 - b. they have palliative effect on the dental pulp
 - c. they have thermal insulation qualities
 - d. they are easily removed from the cavity preparation
110. When cementing a cast restoration, where should the dentist apply the cement?
- a. only to the tooth
 - b. only to the restoration
 - c. on both the restoration and the preparation
111. To prevent physical injury most effectively when using pickling solutions, dentists should wear which of the following?
- a. safety goggles
 - b. utility gloves
 - c. a face mask
112. A practitioner pickles gold alloy restorations by heating them to redness and plunging them into an acid bath. This procedure can result in which of the following?
- a. oxidation of the metal
 - b. porosity in the casting
 - c. warpage of the restoration
 - d. surface roughness of the restoration
113. Handpiece stones can be used primarily to sharpen which of the following operative instruments?
- a. curved chisels
 - b. enamel hatchets
 - c. binangle chisels
 - d. spoon excavators
114. Which of the following properties of a gold alloy exceeds a base-metal alloy in numerical value?
- a. hardness
 - b. specific gravity
 - c. casting shrinkage
 - d. fusion temperature
 - e. modulus of elasticity

115. The reduction of which of the following represents the MOST significant advantage of the acid-etch technique?
- microleakage
 - pulpal irritation
 - setting shrinkage of the matrix
 - coefficient of thermal expansion
116. In selecting a dental base, the dentist should give greatest consideration to which of the following?
- the biocompatibility of the base
 - the strength of the base
 - the thickness of the remaining dentin
117. Currently, bonding of composite restorative materials to dentin depends on
- difunctional coupling agents
 - dehydration of the dentin
 - etching with dilute phosphoric acid
 - covalent bonding
118. The dentist plans to make an impression of an onlay preparation. To operate the tissues around the preparation for the procedure, this dentist will use electrosurgery. When correctly used, electrosurgery will
- reduce the gingival height
 - permanently alter the contour of the ingival tissues
 - remove a thin layer of crevicular gingival tissue
119. Which of the following is the best reason for pouring a condensation impression material as soon as possible?
- the degree of polymerization of condensation polymers is initially high and then decreases with time
 - evaporation of a volatile by-product causes shrinkage of the set material
 - If left unpoured, condensation impression materials expand as they absorb water from air
 - condensation polymers will start to react with the polymer of the impression tray and cause distortion
120. A newly condensed amalgam restoration seems to chip away when being carved. What is the likely cause of this problem?
- a low-copper alloy was used
 - moisture contamination occurred

- c. the alloy was incompletely wetted with mercury
- d. the amalgam was not condensed with the recommended pressure
- e. the amalgam was condensed after its working time elapsed

121. A tray for a polysulfide rubber impression that lacks occlusal stops may result in

- a. holding the tray for the entire time in the mouth
- b. a more prolonged period of setting in the mouth before the tray is removed
- c. an inaccurate final impression because of permanent distortion during polymerization
- d. an inaccurate final impression because of elastic distortion from the mouth

122. A dentist adjusts the shade of a restoration using a complementary color. This procedure will result in

- a. increased value
- b. decreased value
- c. intensified color
- d. increased translucency

123. Which of the following most affects curing of a light-activated composite resin?

- a. increment thickness
- b. shade of composite
- c. length of exposure

124. Before adhesion can take place between a liquid and a solid, it is essential that the liquid surface

- a. provide some mechanical interlocking with the solid
- b. exhibit a large contact angle with the solid
- c. enter into some form of chemical reaction with the solid
- d. exhibit a small contact angle with the solid

125. Visible light curing units are MOST hazardous to the

- a. retina
- b. lens
- c. cornea
- d. iris

126. Tooth bleaching affects a color change in which of the following tooth parts?

- a. dentin only

- b. all of the enamel
- c. both dentin and enamel
- d. only the surface of enamel

127. Porcelain failure in all-ceramic restorations can be avoided if the

- a. occlusal forces are minimal
- b. ceramic material is not over $\frac{1}{2}$ mm in thickness
- c. ceramic material is $1 \frac{1}{2}$ mm in thickness
- d. angles of the preparation are rounded

128. Orange stain is used to

- a. change the hue of porcelain color
- b. increase the interproximal translucency
- c. increase the value of porcelain color
- d. decrease the chroma of porcelain color

129. A properly trimmed wooden wedge will do each of the following EXCEPT one. Which one is this EXCEPTION?

- a. protect the gingival tissue
- b. provide space for the matrix band
- c. prevent overcontouring of the contact area
- d. reduce moisture leakage into the cavity preparation

130. Which of the following is measured by the modulus of elasticity?

- a. stiffness or rigidity
- b. ultimate strength
- c. yield strength
- d. ductility or malleability

131. The light source affects the perception of color, BECAUSE the light source must contain the wavelength of the color to be matched in order to see that color.

- a. both the statement and the reason are correct and related
- b. both the statement and reason are correct but NOT related
- c. the statement is correct, but the reason is not
- d. the statement is NOT correct, but the reason is accurate
- e. NEITHER the statement NOR the reason is correct

132. Amalgam scrap should be stored in a tightly-sealed container and covered with which of the following?

- a. water
- b. glycerin
- c. sulfide solution
- d. sodium hypochlorite solution

133. Chroma is that aspect of color that signifies the

- a. degree of grayness
- b. degree of translucency
- c. degree of saturation of the hue
- d. combined effect of the hue and value

134. A dentist who is planning to restore a tooth with gold alloy desires a certain amount of expansion in the casting investing mold. Which of the following best explains why this expansion is desirable?

- a. It allows for the shrinkage of the molten metal and the wax pattern
- b. It compensates for the shrinkage of the molten metal as it cools in the mold
- c. It makes the metal casting larger than the wax pattern so that the casting will fill the tooth tightly

135. The dentist is using polyether material to make impressions. The physical property of this material that should concern this dentist is the

- a. coefficient of thermal conductivity
- b. hydrophilic nature
- c. extended setting time
- d. high modulus of elasticity

136. Which of the following best explains how high-copper amalgam restorations differ from conventional amalgam restorations? The high-copper restorations

- a. have little or no tin-mercury phase
- b. require less mercury, so there is more matrix formed
- c. corrode at an accelerated rate due to increased copper content
- d. are unaffected by moisture contamination in the presence of zinc

137. A practitioner who is restoring a tooth with composites wishes to be sure that the matrix has adhered to the filler. Which of the following agents adheres the resin matrix to the filler?

- a. wetting
- b. coupling
- c. catalyzing

d. activating

138. Which of the following do polycarboxylate and glass ionomer have in common?

- a. zinc oxide
- b. polysiloxane
- c. phosphoric acid
- d. polyacrylic acid
- e. ion-leachable glass

139. A practitioner has burnished a margin. As a result of this procedure, the dental casting gold has become stronger, but less ductile. Which of the following explains why?

- a. the gold has work-hardened
- b. the grains have elongated
- c. the stiffness has increased
- d. the surface flaws have been removed

140. The light from visible-light polymerization units can cause which of the following?

- a. iritis
- b. cataracts
- c. retinal damage
- d. corneal ulcerations

141. Repeated fracture of a porcelain-fused-to-metal restoration is due primarily to

- a. occlusal trauma
- b. improper firing schedule
- c. failure to use metal conditioner
- d. an inadequately designed framework

142. Elongated grains in the microstructure of a wrought wire indicates that it has been

- a. cold worked
- b. recrystallized
- c. stress relief annealed
- d. hardened by heat treatment

143. For best results when using an elastomeric impression material, the prepared tooth should be

- a. very dry
- b. free surface moisture
- c. covered thinly with a water-soluble lubricant
- d. covered with a surface tension-reducing agent and air dried

144. The setting time of zinc phosphate cement can be retarded by

- a. increasing the ratio of powder to liquid
- b. diluting the liquid with a small amount of water
- c. accelerating the rate of addition of powder to liquid
- d. decreasing the rate of addition of powder to liquid

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- a. degree of translucency
- b. degree of saturation of the hue
- c. combined effect of hue and value
- d. all of the above
- e. none of the above

146. Using a thinner mix of a gypsum-bonded investment will

- a. produce a smoother casting
- b. increase setting expansion
- c. decrease setting expansion
- d. increase thermal expansion

147. Which of the following materials will produce the most rigid restoration for frameworks of the same dimension?

- a. wrought gold
- b. palladium alloys
- c. cobalt-chromium alloys
- d. partial denture casting gold in the hardened condition

148. Which of the following may result if an excessive amount of monomer is incorporated into an acrylic resin mixture?

- a. excessive expansion
- b. excessive shrinkage
- c. low impact strength
- d. excessive brittleness

149. In the metal-ceramic technique, heating the metal structure in a furnace prior to application of porcelain is necessary to

- a. raise the proximal limit of the metal
- b. oxidize trace elements in the metal
- c. eliminate oxidation

- 1. a only
- 2. a and b
- 3. a and c
- 4. b only
- 5. b and c
- 6. c only

150. In casting the metal substructure for a metal-ceramic restoration, it is usually necessary to use a

- a. gas-air touch
- b. gypsum-bonded investment
- c. phosphate-bonded investment
- d. crucible that has not been used for other alloys

- 1. a and b
- 2. a and c
- 3. b and d
- 4. c only
- 5. c and d

151. Increasing the water-powder ratio when mixing gypsum materials will

- a. weaken the set material
- b. increase the setting
- c. decrease the setting time
- d. increase the setting expansion
- e. decrease the setting expansion
- f. increase the porosity of the set material

- 1. a, b, and f only
- 2. a, b, e and f
- 3. b, e, and f only
- 4. c, e and f
- 5. c and e only
- 6. d and f

152. In which of the following ways do surface characteristics of porcelain affect the perceived form of the final restoration?

- a. a surface smoother than normal will give the impression of a larger size

- b. horizontal highlights suggest increased length
- c. vertical highlights give an illusion of width
- d. changes in contour and resulting highlights can be used to alter the apparent long axis inclination of a tooth

- 1. a, b and c
- 2. a, c and d
- 3. a and d only
- 4. c and d only
- 5. all of the above

153. The retentive characteristics of a full crown may be enhanced by

- a. using glass ionomer cement
- b. using zinc phosphate cement
- c. adding pinholes in the preparation
- d. adding grooves parallel to the path of draw
- e. maximizing the parallelism of the axial walls

- 1. a, c and d
- 2. a, d and e
- 3. b, c and d
- 4. b, c and e
- 5. c, d and e
- 6. all of the above

154. Staining a porcelain restoration produces which of the following effects?

- a. reduced value
- b. increased value
- c. increased metameric responses
- d. increased difficulty of glazing the restoration

- 1. a and c
- 2. a and d
- 3. b and c
- 4. b and d
- 5. c and d
- 6. all of the above

155. The porcelain-fused-to-metal framework must NOT be contaminated by handling between which two steps of the overall porcelain application process?

- a. bisque bake and glazing
- b. opaque bake and bisque bake

- c. heat treatment and opaque bake
- d. presoldering and heat treatment
- e. first opaque bake and second opaque bake

156. When making a polysulfide impression for a cast crown, custom trays usually preferred over stock trays are usually preferred over stock trays for all of the following reasons EXCEPT

- a. custom trays require less impression material
- b. custom trays facilitate uniform contraction of the impression material
- c. impression made in custom trays are easier to remove from the mouth
- d. stock trays may be short in the flange area

157. Running tap water over master casts of dental plaster or dental stone should be minimized because the completely set gypsum material is partially soluble in water

- a. both statement and reason are correct and related
- b. both statement and reason are correct but NOT related
- c. the statement is correct but the reason is not
- d. the statement is NOT correct but the reason is an accurate statement
- e. neither statement nor reason is correct

158. The adhesive placed inside a custom tray should not be allowed to dry before placing the impression material in the tray, because the sticky surface of the adhesive will help bond the impression material to the tray

- a. both statement and reason are correct and related
- b. both statement and reason are correct but NOT related
- c. the statement is correct but the reason is NOT
- d. the statement is NOT correct but the reason is an accurate statement
- e. NEITHER statement nor reason is correct

159. Which of the following properties is most characteristic of currently available cement bases?

- a. adhesives
- b. high ductility
- c. high edge-strength
- d. low coefficient of thermal conductivity

160. Direct filling is heated prior to condensation to

- a. soften the gold
- b. alter its crystal structure

- c. drive off moisture and volatile compounds that have been placed on its surface
- d. eliminate corrosive compounds that have accumulated on its surface
- e. all of the above

161. Which of the following is most related to turbulence of molten gold in the casting process?

- a. venting
- b. volume of metal
- c. placement of sprue
- d. position in the ring
- e. temperature of the ring

162. The proper zone of a gas-air blowpipe flame used for melting casting gold alloys is

- a. the reducing zone
- b. the oxidizing zone
- c. the zone closest to the nozzle
- d. a combination of oxidizing and reducing zones

163. Inlay wax patterns should be invested as soon as possible after fabrication in order to minimize changes in shape caused by

- a. drying of the wax
- b. reduction in temperature
- c. volatilization of wax components
- d. continued expansion of the wax
- e. relaxation of internal stresses

164. Mercury vaporization in an amalgam restorative procedure utilizing well-sealed, premeasured capsules is most likely to occur during

- a. mulling
- b. carving
- c. trituration
- d. condensation
- e. high-speed evacuation

165. The strength of dental investments for gold alloys is dependent upon the amount of

- a. silica
- b. carbon
- c. gypsum

d. alumina

166. The property that most closely describes the ability of a cast gold inlay to be burnished is

- a. elastic limit
- b. ultimate strength
- c. percentage elongation
- d. modulus of resilience
- e. modulus of elasticity

167. Creep of a metal indicates that the metal

- a. lacks edge strength
- b. has excessive flexibility
- c. has insufficient retention
- d. will deform under static load
- e. has insufficient crushing strength

168. cavity varnish is indicated for use under amalgam restorations to

- a. prevent galvanic currents from reaching the pulp
- b. improve the marginal seal of the restoration
- c. seal the dentinal tubules completely
- d. act as an effective thermal insulator
- e. all of the above

169. When a liquid wets a solid completely, the contact angle between the liquid and the solid is

- a. 0°
- b. 45°
- c. 90°
- d. 135°

170. A restorative material that has a high proportional limit, compared with one with a lower proportional limit, invariably has

- a. greater ductility
- b. greater toughness
- c. a higher modulus of elasticity
- d. more resistance to permanent deformation

171. Which of the following properties of dental materials is time-dependant?

- a. creep

- b. resilience
- c. elastic limit
- d. ultimate strength
- e. compressive strength

172. The discolored, corroded superficial layer frequently seen on the surface of a dental amalgam restoration is most likely

- a. mercury
- b. a sulfide
- c. gamma-2
- d. copper oxide

173. In mixing zinc phosphate cement, which clinical variable has the greatest effect on the strength of the cement?

- a. spatulation time
- b. liquid-powder ratio
- c. temperature of the mixing slab
- d. number and size of powder increments

174. Which of the following agents may be used on dentin as a cavity medicament because it does not irritate the dental pulp?

- a. alcohol
- b. calcium hydroxide
- c. ethyl chloride
- d. silver nitrate
- e. 10% hydrogen peroxide
- f. none of the above

175. The component common to most composite resins, sealants, bonding and glazing agents, and resin cements for orthodontic bands is

- a. inorganic filler
- b. benzoyl methyl ether
- c. poly(methacrylate)
- d. bisphenol A-glycidyl methacrylate

176. Which of the following is most likely to cause necrosis of the sulcular epithelium and the adjacent layer of connective tissue when impregnated into string used for tissue retraction?

- a. epinephrine
- b. zinc chloride
- c. aluminum sulfate

d. aluminum chloride

177. On a carbide bur, a greater number of cutting blades results in

- a. less efficient cutting and smoother surface
- b. less efficient cutting and rougher surface
- c. more efficient cutting and a smoother surface
- d. more efficient cutting and a rougher surface

178. The rotary instrument that produces the roughest tooth surface after use is a

- a. 3/8-inch fine garnet disk at slow speed
- b. crosscut tapered fissure bur at slow speed
- c. plane tapered fissure bur at high speed
- d. 12-fluted carbide fissure bur at high speed

179. A typical polymer-reinforced zinc oxide-eugenol cement contains approximately 20 per cent by weight of which of the following in the powder component?

- a. silica
- b. alumina
- c. ethoxybenzoic acid
- d. poly(methyl methacrylate)

180. Examination of a patient with a hypersensitive tooth reveals an obviously leaking temporary restoration that, when removed, discloses a good cavity preparation of average depth with no carious debris and no pulpal exposure. Suspecting a possible hyperemic pulp, the dentist should place an anodyne dressing of

- a. zinc oxide-eugenol
- b. zinc phosphate cement
- c. a varnish followed by zinc oxide-eugenol
- d. a varnish followed by zinc phosphate cement
- e. calcium hydroxide followed by zinc phosphate cement

181. A patient returns to the dentist two weeks after a gold onlay was cemented with zinc phosphate cement. The patient complains of moderate sensitivity to cold. Occlusion is evaluated and the onlay is not in hyperocclusion. The dentist should

- a. take the restoration out of occlusion
- b. remove the onlay and place a sedative dressing
- c. take and evaluate a periapical radiograph

d. advise the patient to avoid extreme temperatures and that the sensitivity to cold will gradually decrease

182. A zinc oxide-eugenol cement base is contraindicated for use with self-curing resin restorative materials because

- a. the compressive strength of the cement is too low
- b. cement interferes with the polymerization of the resin
- c. zinc oxide and Bis-GMA form a soluble compound
- d. the cement increases the polymerization shrinkage of the resin

183. Which of the following factors govern the rate of set of a zinc phosphate cement?

- a. powder-liquid ratio
- b. rate of powder incorporation
- c. particle size of the powder
- d. manner of spatulation
- e. water content in the liquid

- 1. a, b and d
- 2. a, b, c and e
- 3. a, b, d and e
- 4. a, c, d and e
- 5. b, c, d and e
- 6. all of the above

184. Which of the following apply when using a light to cure light activated composite resin?

- a. the light should be held as close to the resin surface as possible
- b. the light should be held at least 5.0 mm. from the resin surface
- c. a shield should be placed between the light tip and the operator's eyes
- d. curing time should be increased with darker resin shades
- e. curing time should be increased with lighter resin shades

- 1. a, c and d
- 2. a, c and e
- 3. a and d only
- 4. b, c and d
- 5. b, c and e
- 6. b and e only

185. Pure gold can be contaminated when it comes in contact with

- a. moisture

- b. sulfur vapors
- c. eugenol vapors
- d. oxygen rich flame

- 1. a, b and c
- 2. a, b and d
- 3. a, c and d
- 4. b, c and d
- 5. all of the above

186. The high copper dental amalgams are superior to other amalgams because high copper dental amalgams

- a. are less likely to corrode
- b. have less marginal breakdown
- c. are workable at lower Hg-alloy ratios
- d. generally have higher compressive strength

- 1. a and b only
- 2. a, b and d
- 3. a and c
- 4. a and d only
- 5. b only
- 6. b, c and d

187. When a Type III dental casting gold alloy is heated to a cherry red color and quenched immediately, which of the following are increased?

- a. surface hardness
- b. malleability
- c. proportional limit
- d. ductility
- e. strength

- 1. a and c
- 2. a and d
- 3. b and c
- 4. b and d
- 5. c and e

188. Which of the following properties are so nearly equal in magnitude that they may be used interchangeably even though defined differently?

- a. strain
- b. elastic limit
- c. yield strength

- d. proportional limit
- e. modulus of elasticity

- 1. a, b and c
- 2. a and d
- 3. a and e
- 4. b and d
- 5. c, d and e

189. Enamel is etched, usually with buffered phosphoric acid, prior to placing a resin restorative to

- a. allow a chemical bond to form between enamel and resin
- b. allow for increased retention of the resin restoration
- c. allow for better sealing of the margins of the resin restoration
- d. produce enamel irregularities ranging from 5-30 micrometers in depth

- 1. a, b and d
- 2. a and c
- 3. b, c and d
- 4. b and d only
- 5. all of the above

190. Acid etching of enamel increases retention and adaptation of resin restorations by

- a. increasing the surface area
- b. conditioning the surface for better wetting
- c. creating surface irregularities for better mechanical locking

- 1. a and b
- 2. a and c
- 3. b and c
- 4. all of the above

191. The correct technique of enamel etching prior to placement of a composite resin restoration includes

- a. etching with 60-70% phosphoric acid
- b. etching with 30-50% phosphoric acid
- c. rinsing thoroughly with water and drying with cotton pellets and air
- d. rinsing thoroughly with water and drying with air only
- e. rinsing thoroughly with water, drying with air and applying a cavity-drying agent

- 1. a and c
- 2. a and d

3. a and e
4. b and c
5. b and d
6. b and e

192. Which of the following influence tooth temperature during a cutting procedure?

- a. diameter of the bur
- b. sharpness of the bur
- c. bur/tooth contact time
- d. type of coolant used
- e. amount of force applied to the bur

1. a, b, c and d
2. a, b, c and e
3. a, b and d only
4. b, c and e only
5. c, d and e
6. all of the above

193. The dangers of using air as a coolant while cutting with ultra-high speed are that it may

- a. dehydrate the tooth
- b. cool the pulp below the danger point
- c. cause the tooth to be hypersensitive
- d. allow the cutting to proceed too quickly
- e. draw the odontoblasts into the dentinal tubules

1. a, c and e
2. a and d
3. b and c
4. c and e only
5. all of the above

194. Signs of an adverse systemic reaction to the gingival retraction cord impregnated with aluminum chloride include

- a. tachycardia
- b. bradycardia
- c. increased respiration
- d. evaluated blood pressure

1. a, b and c
2. a, b and d

- 3. a, c and d
- 4. b, c and d
- 5. all of the above
- 6. none of the above

195. Use of water spray and high volume evacuation is recommended when removing old amalgam or polishing dental amalgam restorations because mercury vapor is released during these procedures

- a. both statement and reason are correct and related
- b. both statement and reason are correct but NOT related
- c. the statement is correct but the reason is NOT
- d. the statement is NOT correct but the reason is an accurate statement
- e. NEITHER statement nor reason is correct

196. Which of the following has the least density?

- a. gold
- b. dentin
- c. enamel
- d. amalgam
- e. porcelain

197. The phenomenon where porcelain appears different under varying light conditions is

- a. metamerism
- b. translucency
- c. transmittance
- d. opacification
- e. refractive optics

198. Which of the following dental cements is a luting agent that provides adhesion to calcified dental tissue?

- a. EBA-ZOE cement
- b. Silicate cement
- c. Zinc phosphate cement
- d. Polycarboxylate cement

199. In metal-ceramic crowns and fixed partial dentures, the function of tin, indium and other readily oxidized minor components of the alloy is to

- a. improve bonding
- b. decrease porosity
- c. react with the porcelain and make an opaque layer to mask the metal

d. improve thermal expansion matching between the metal and the porcelain

200. Which of the following results from addition of more water initially to a mix of gypsum products (hemihydrate)?

- a. more expansion, more strength, more abrasion resistance
- b. more expansion, less strength, less abrasion resistance
- c. less expansion, more strength, less abrasion resistance
- d. less expansion, less strength, less abrasion resistance

201. Porcelain bonded to metal is strongest when

- a. air fired
- b. under compression
- c. tempered after firing
- d. fired several times before completion

202. Opaque porcelain showing through on the facial surface of a metal-ceramic restoration (headlighting) may be caused by

- a. the metal being too thick
- b. inadequate tooth preparation
- c. the opaque porcelain being too thick
- d. inadequate thickness of the body porcelain
- e. any of the above

203. A fixed partial denture is indicated to replace maxillary first and second premolars. The abutment teeth, which are in normal alignment, are the canine and the first molar.

The connectors of choice are

- a. precision attachments on both the canine and the molar
- b. a soldered joint on the canine and a nonprecision dovetail keyway on the molar
- c. a soldered joint on the molar with a subocclusal rest on the canine
- d. soldered joints on both the canine and the molar

204. When a nongrid connector is used in a fixed partial denture, the path of insertion of the key into the keyway should be parallel to

- a. the path of insertion of the retainer carrying the keyway
- b. the path of insertion of the retainer not involved with the keyway
- c. the paths of insertion of both retainers
- d. none of the above

205. In the comparison of base metal removable partial denture alloys and hardened type IV gold alloys, the base metals have
- higher yield strengths, higher modulus of elasticity and hardness
 - lower yield strengths, higher modulus of elasticity and hardness
 - higher yield strengths, lower modulus of elasticity and hardness
 - about the same yield strengths, higher modulus of elasticity and hardness
 - about the same yield strengths and hardness, but higher modulus of elasticity
206. Resistance of base metal appliances to corrosion and tarnish in the oral cavity is due to the formation of
- $\text{Fe}_2(\text{OH})_3$
 - An adherent tin oxide film
 - A complex chromium oxide film
 - A thin, blue film of cobalt oxide
207. Which of the following mechanisms is responsible for initiation of polymerization in self-curing resins?
- exothermic reaction of polymerization
 - dissociation of benzoyl peroxide by tertiary amines
 - dissociation of hydroquinone molecules by benzoyl peroxide
 - dissociation of poly(methyl methacrylate) molecules by monomer molecules
208. To have correct incisal and gingival color of metal-ceramic restorations, the color may be modified by
- using stains
 - using stained porcelain
 - refiring at a higher temperature
 - changing the light reflection by grinding and repolishing
- a only
 - a and b only
 - a, b and c
 - b only
 - b and c only
 - d only
209. Syneresis and absorption are inherent properties that effect the dimensions of which of the following impression materials?
- silicones

- b. polysulfide rubbers
- c. reversible hydrocolloids
- d. irreversible hydrocolloids
- e. impression modeling compounds

- 1. a and b only
- 2. a, b and e
- 3. c and d
- 4. c and e
- 5. d only

210. A low sag factor in a metal-ceramic fixed partial denture can cause

- a. flow of metal under functional loads
- b. high abrasion resistance
- c. less deformation of bridge spans when fired
- d. poor metal-ceramic bond strength
- e. contamination of porcelain

- 1. a only
- 2. a and d
- 3. b and c
- 4. c only
- 5. d and e
- 6. all of the above

211. Which of the following are causes of separation or fracture of the porcelain from the metal in the metal-ceramic technique?

- a. poor metal framework design
- b. excessive porcelain condensation
- c. centric occlusal contacts entirely on porcelain
- d. contamination of metal prior to opaque application

- 1. a, b and d
- 2. a and c
- 3. a and d only
- 4. b and d only
- 5. c and d

212. On a properly trimmed die, wax should not extend deliberately beyond the gingival finish lines of the completed pattern because, upon removal of an overextended pattern, permanent wax distortion will occur.

- a. both statement and reason are correct and related
- b. both statement and reason are correct but NOT related

- c. the statement is correct but the reason is NOT
- d. the statement is NOT correct but the reason is an accurate statement
- e. NEITHER statement nor reason is correct

213. Which of the following are found in the powder of a denture resin?

- a. polymer
- b. monomer
- c. hydroquinone
- d. benzoyl peroxide

- 1. a and c
- 2. a and d
- 3. b and c
- 4. b and d
- 5. c and d

214. Polymerization shrinkage of acrylic resin can be minimized by

- a. using a proper packing technique
- b. correctly manipulating the acrylic mixture before packing
- c. using correct proportions of monomer and polymer for packing
- d. overpacking about 10 per cent to help compensate for shrinkage

- 1. a, b and c
- 2. a, b and d
- 3. a and c only
- 4. b, c and d
- 5. b and d only
- 6. all of the above