

~~*CORRECTED*~~

1. Please read all directions before starting the examination.
2. Your examination booklet should contain 6 pages with a total of 30 multiple choice and T/F questions and 20 short answer questions. Please check to verify you have all of the examination.
3. Write your name and preclinic seat number on the cover of the examination booklet and on the first page of the short answer section.
4. Write your name and Temple ID number on the computerized answer sheet in the appropriate boxes. Blacken the corresponding letters and digits below the boxes.
5. On the cover of your exam booklet is a number and letter (A or B). In the box labeled "optional codes" on the computerized answer sheet circle A or B depending on your exam and under the circled letter write the number of your exam. Blacken the appropriate circles.
6. On the reverse side of the computerized answer sheet sign your name and write the number and letter (A or B) of your test booklet in the box labeled identification information.
7. Be sure to darken all circles on the computerized answer sheet before the end of the examination. Extra time will not be given at the end of the examination for this purpose.
8. Choose the best answer for each question. No questions will be answered during the examination.
9. Return the computerized answer form **AND** the entire examination booklet to the proctor.

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1. What is the pH threshold at which enamel demineralization begins to occur?

- a. 7.5 b. 6.5 c. 5.5 d. 4.5

2. Which of the following teeth is most likely to benefit from occlusal sealant placement?

- a. Maxillary first premolar c. Maxillary second molar
b. Mandibular first molar d. Mandibular second premolar

3. A large carious lesion on the distal surface of a maxillary central incisor involving the incisal angle is a

1. Class I lesion 4. pit and fissure lesion
2. Class II lesion 5. smooth surface lesion
3. Class IV lesion

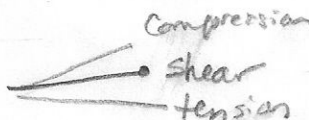
- a. 1 only b. 2 and 5 c. 3 and 5 d. 3 only e. 4 only

4. When applying a Tofflemire matrix band to a tooth with a Class II preparation, the edge of the band with the larger circumference is always oriented occ and the open end of the U-shaped retainer head is always oriented ging

- a. occlusally, occlusally c. gingivally, gingivally
b. occlusally, gingivally d. gingivally, occlusally

5. Force applied to the occlusal surface of a crown at an oblique angle can produce a line of action that passes outside the supporting tooth structure. The point on the margin closest to the line of action is the fulcrum point or center of rotation. If a line is drawn from the center of rotation perpendicular to the cement film on the opposite wall of the prep, the point where this line intercepts the cement film is called the tangent point. Apical to the tangent point of a crown preparation the forces have a component of _____

- a. compression b. shear c. tension.



According to material presented in lecture and the Sturdevant text, identify the following statements (questions 6 - 11) as true or false. Darken (a) on your answer sheet if the statement is true. Darken (b) on your answer sheet if the statement is false.

a. True

b. False

- T** 6. No correlation exists between resin tag length and enamel/resin bond strength
- F** 7. Base materials are needed under composite resin restorations to provide thermal insulation
- F** 8. A preparation on a tooth with a large diameter resists pivoting movements better than a preparation of equal length on a tooth of smaller diameter.
- F** 9. When cementing an indirect composite veneer, the bonding agent is applied to the tooth surface of the veneer and cured before placing the veneer on the tooth to ensure complete polymerization of the bonding agent.
- F** 10. The depth of enamel dissolution caused by acid etching is approximately 100 to 150 microns.
- T** 11. According to information presented in Dr. Arocho's lecture, Treatment Planning is mostly an information gathering process that ultimately leads to the establishment of a diagnosis (es).

- B** 12. The current consensus is that dentin bonding agents bond primarily _____ to tooth structure.
a. chemically **(b)** mechanically c. via hydrogen bonding

13. According to material presented in the required readings, compared to amalgam, resin composites have all of the following advantages except:

- D** a. low thermal conductivity ~~b. esthetics~~ c. high early strength **(d)** a self-sealing mechanism

14. Teeth with intrinsic staining sometimes require restorations because of patient esthetic concerns. These teeth can be restored using direct composite veneers. Which of the following statements are true concerning direct composite veneer restorations. (ST p.654)

- B** 1. Tetracycline-stained teeth are much more difficult to veneer, especially if dark staining occurs in the gingival third of the tooth ✓
2. Multiple layers of opaque materials should be applied in thin layers and cured independently ✓
3. Allowing opaque material to remain at the cavosurface margin will not affect the esthetics of the restoration ✗
4. Using a brush to obtain a stippled surface on the opaque material results in improved esthetics because it helps reflect light rays in many directions outward through the veneer.

- a. All statements are true **(b)** 1, 2, 4 c. 2, 3, 4 d. 1, 2 e. 1 only

15. According to the material presented in the Sturdevant text (p.859), remaining old restorative material on the internal walls of a preparation should be removed if which of the following condition(s) is (are) present:

- C** 1. The old material is judged to be thin, non-retentive or both. ✓
2. There is evidence of caries under the material (radiographic and/or visual) ✓
3. The pulp was symptomatic preoperatively ✓
4. The periphery of the remaining restorative material is intact

- a. all of the above b. 2 only **(c)** 1, 2, and 3 d. 1, 2 e. 2, 3

A 16. Microfill resin composites generally have a _____ percentage filler content than other types of resin composites.
(a) lower b. higher

17. According to information found in the Sturdevant text (Table 3-15) which of the following situations require pit and fissure sealants

- C** 1. teeth that have remained caries-free for ≥ 4 years ✗
2. well-coalesced fossae and grooves ✗
3. teeth that have active proximal cavitated lesions ✗
4. teeth showing signs of softening or opacity in pits and fissures ✓
5. recently erupted molars ✓

- ~~a. 1, 4 and 5~~ ~~b. 2, 3 and 4~~ **(c)** 4 and 5 d. 2, 4 and 5

18. Which of the following are true regarding the use of the knife edge finish line for cast gold restorations :

1. the axial reduction may fade out instead of terminating in a definite finish line ✓
2. difficulty in identification may make waxing of the restoration difficult
3. it is more susceptible to distortion under occlusal forces
4. can result in overcontoured restorations ✓

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

19. The most deleterious effect of polymerization shrinkage of a resin composite is;

- a. color change b. increased wear c. microgap formation d. increase in softness

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

1. varnish 2. Ca(OH)_2 3. IRM 4. Zinc phosphate cement 5. Copalite

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

21. To decrease the diameter of the matrix band, the operator should turn the _____ on the matrix retainer _____

- a. adjusting nut; clockwise c. adjusting nut; counterclockwise
b. locking nut; counterclockwise d. locking nut; clockwise

22. In a Class V amalgam preparation for an incipient lesion, the ideal internal form of the preparation has which of the following features?

- a. the axial wall is flat c. the occlusal and gingival walls converge *diverge*
b. the mesial and distal walls converge d. the axial wall is uniformly deep into dentin. *diverge*

23. Bacteria role in dental caries:

1. Follows a vertical path of infection (parent to child) ✓
 2. S. mutans and lactobacilli have been associated with the caries process. ✓
 3. Lactobacilli are the initiators of the carious lesion.
 4. Both bacteria (S. mutans and lactobacilli) are part of the normal flora of the mouth since birth. X
- a. 1, 2 only b. 2,3 only c. 1,4 only d. 2,4 only e. All of the above

24. You are planning to use a composite resin material for a Class IV restoration. Which of the following steps would you follow?

- a. Apply rubber dam, select shade, pumice teeth, accomplish preparation, place & finish restoration.
b. Select shade, pumice teeth, apply rubber dam, accomplish preparation, place & finish restoration.
c. Pumice teeth, select shade, apply rubber dam, accomplish preparation, place & finish restoration
d. Select shade, pumice teeth, apply rubber dam, accomplish preparation, place & finish restoration.

25. A chamfer margin is formed as the negative image of a straight-sided cylinder diamond; therefore a chamfer should not be wider than half the diameter of the bur used, otherwise a lip of unsupported enamel results.

- a. both statements are true c. statement one is true; statements two is false
b. both statements are false d. statement one is false; statement two is true

26. The reduction of which of the following represents the most significant advantage of the acid-etch technique

- a. pulpal irritation c. polymerization shrinkage of the matrix
b. microleakage d. coefficient of thermal expansion

27. The hybrid layer, or interdiffusion zone is

- a. in dentin bonding, the layer in which the hydrophilic resin surrounds the collagen fibers.
b. in dentin bonding,, the layer of unfilled adhesive resin which attaches to the composite resin
c. in composite resins, the layer containing both barium glass and colloidal silica.
d. in composite resins, the zone of filler particles just adjacent to the unfilled resin

28. Which of the following are true statements concerning the placement of gingival finish lines for full gold crowns

1. Finish lines should be placed in enamel when it is possible to do so. ✓
2. Finish lines must be placed so that they can be duplicated by the impression, without tearing or deforming the impression when it is removed from the mouth. ✓
3. In a caries prone individual, it is best to place the finish line subgingival because the gingival sulcus is caries-free. ✗
4. Extending the finish line beyond an acceptable existing restorations is not necessary. ✗
5. The deeper the finish line (restoration margin) resides in the gingival sulcus, the greater the inflammatory response of the periodontium. ✓

B

a. all of the above are true

b. 1, 2 and 5

c. 1, 2, 4, 5

d. 2, 4 and 5 only

e. 1, 4 and 5 only

29. In a full gold crown preparation, the purpose of the seating groove is to

- E
- a. prevent any rotational tendencies during cementation
 - b. help guide the casting to place during cementation
 - c. provide resistance and retention form
 - d. two of the above
 - e. all of the above

30. It is more difficult to bond to dentin than to enamel because:

- C
1. dentin contains less mineralized tooth structure ✓
 2. dentin contains more water ✓
 3. the presence of the smear layer makes it harder for the adhesive to wet the dentin ✓

a. one of the above

b. two of the above

c. all of the above

Name: _____

Seat #: _____

40 points total

This section of the exam contains 20 short answer type questions (40 points). Read the directions and questions carefully. All answers should be short, legible and spell-checked. Answers that cannot be read will be marked wrong. Responses containing the correct answer surrounded by numerous non-correct answers will also be marked wrong.

Today we will shadow Dr. Iggy as he prepares to treat a patient requiring a DO restoration on tooth number 29.

After proper introduction, Dr Iggy explains to the patient what he will be restoring a carious lesion on tooth #29. The patient begins to question Dr. Iggy about what types of restorative materials could be used to restore the tooth. She insists on "tooth colored" material. Dr. Iggy explains that the cavity appears to be small and "tooth colored" material would most likely be possible but the final decision would be made after the preparation is complete.

After obtaining anesthesia, Dr. Iggy prepares to apply the rubber dam. The patient has a full complement of teeth including third molars. Tooth # 32 is partially erupted. Dr. Iggy decides to use a winged clamp.

What tooth should Dr. Iggy use as the posterior anchor tooth for the rubber dam clamp? Why did you choose this tooth?

(1) #31 is the best choice. 32 is partially erupted therefore not the best choice. Because Dr. Iggy decided to use a winged clamp, tooth # 30 is not the best choice because the clamp wings might interfere with the matrix band placement

How many teeth (minimal) should Dr. Iggy isolate? (2) ≥ 5 is the best answer. Try not to end on the canine.

What should Dr. Iggy use to prevent the rubber dam from slipping off the most anterior tooth? (3) Dental floss, piece of rubber dam,

With the rubber dam placed, Dr. Iggy begins the preparation. He is not sure if he should prepare a conventional preparation or a slot preparation. What criteria would be most important in determining whether to prepare a conventional or a slot preparation? (4) Most important criteria is the condition of the occlusal surface. Pre-existing occlusal restorations or caries in the occlusal pits and fissures would dictate a conventional prep. Occlusion should also be considered. Heavy contact on the marginal ridge would be a contraindication for the slot prep. Large proximal lesions would not be good candidates for the slot prep

Dr. Iggy decides to do a conventional preparation and after properly preparing the Class I portion of the prep drops the proximal box. Dr. Iggy breaks contact (minimally / 0.5 mm) with the adjacent tooth on the buccal and lingual walls. The buccal, lingual and occlusal preparation margins end on caries free/sound tooth structure.

Should Dr. Iggy bevel the buccal and lingual proximal walls? Justify your answer. (5) Beveling is not indicated because access would be difficult given the conservative size of the preparation

Should Dr. Iggy bevel the occlusal cavomargins? ____ Justify your answer. (6) No beveling of composite margins on occlusal bearing surfaces.

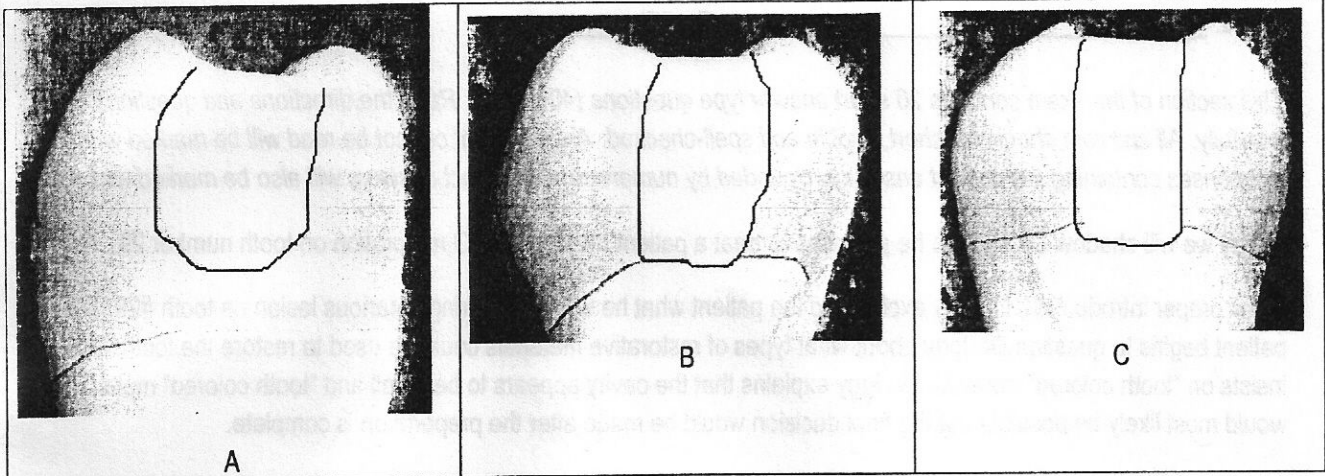
Give two benefits derived from beveling composite resin preparations.

(7 & 8) Decrease in micro leakage; aesthetic blending; etch the ends of the enamel rods

What two clinical criteria would determine the location of the gingival cavosurface margin in this preparation?

(9 & 10) Extent of the decay / extend to sound tooth; break contact with adjacent tooth

Below you can see three pictures of possible locations for the gingival cavosurface margin (when viewed from the proximal). Picture A has the gingival cavomargin 2 mm above the CEJ. Picture B shows the gingival cavomargin at the CEJ and picture C shows a gingival margin 0.5 mm below the CEJ.



Which preparation(s) could receive a gingival bevel? (11) A only

What two criteria would you use to determine placement of the gingival bevel?

(12 & 13) Access for a bur/instrument; distance from the CEJ; condition of the enamel

Which preparation(s) must receive a gingival retention groove? (14) B and C

Why? What benefit(s) would be derived from placement of a gingival retention groove? (15) Provides macrodental retention and helps counter the polymerization shrinkage and debonding forces that occur during curing

What is the C-factor for the Class II composite restoration described above? (16) 2

What is the C-factor and why is it important in composite preparations? (17) Ratio of bonded to unbounded surfaces. Unbonded surfaces provide stress relief to minimize bond disruption associated with polymerization shrinkage.

The preparation is complete and a proper matrix band is placed. After Dr. Iggy completes the etching procedure, the preparation becomes contaminated with saliva. What should Dr. Iggy do next?

(18) Check the integrity of the rubber dam; Repeat the acid etch procedure (rinse and dry the prep , re-apply acid etch, rinse, dry, apply bonding agent, light cure bonding agent, incrementally apply and cure composite

Describe the technique for proper placement of a Class II composite resin restoration. Specifically describe what can/should be done to insure contact, sealed margins and minimization of polymerization shrinkage.

(19) Place matrix band and wedge; burnish band against the adjacent tooth to improve the contact; place

and cure composite in 2mm increments using the diagonal layering technique; slightly overfill the preparation

top allow for minimal finishing and polishing

Dr. Iggy has completed the procedure and is ready to remove the rubber dam. Please describe the proper sequence of steps for proper rubber dam removal. (20) Stretch the rubber dam away from the gingival tissue and using blunted safety scissors cut the interseptal dam . Remove the clamp, dam and frame from the patients mouth, check the dam for missing dam pieces especially in the interseptal areas.