



School of Dentistry  
Department of Restorative Dentistry

RESTORATIVE DENTISTRY V (D553)

**Final Examination**

December 18, 2003

TEST CODE 02

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INSTRUCTIONS

- Verify that you have an examination booklet with six pages and fifty questions.
- Write your name on the computer answer sheet, as well as a nine digit personal identification number of your choosing in the field labeled "social security number", and blacken the appropriate circles with a #2 pencil. *Note: Test scores will be posted by PINs.*
- Sign and date the back of the computer answer sheet.
- **IMPORTANT!** Write the Test Code Number (above) on the computer answer sheet in the "Test Code" field under "Optional Codes", and blacken the appropriate circles.
- For each question answered, blacken the appropriate circle on the computer answer sheet corresponding to the letter of your choice.
- Students are not permitted to ask questions of the proctors during the examination. Do your best to answer each question with the information provided.
- When you have completed the examination, turn in your computer answer sheet. You may keep the question booklet.

This exam consists of five scenarios, each with ten questions. The first set of five true/false type questions tests factual knowledge relevant to the patient profile. The second set of five multiple-choice questions tests reasoning skills related to decision-making for the case. Every question has a value of one point.

**Patient Profile #1**

72-year-old female in fragile health, totally edentulous

S: loose dentures with worn and broken teeth, 20+ years old

O: atrophic mandibular ridge; diffuse red papillary lesion of the hard palate

A: inflammatory papillary hyperplasia; defective complete prostheses

P: new complete dentures

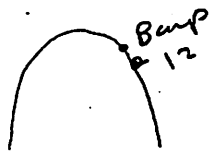
For each of the following five questions, indicate whether the statement is true (A) or false (B).

1. During the fabrication of the new dentures, the closest speaking distance is determined with occlusion rims and then verified in the wax dentures using the "mmm" or humming test. **F**
2. Patients treated with implant-supported or natural tooth-supported over-dentures generally exhibit lower rates of alveolar bone resorption than conventional denture wearers. **T**
3. Freeway space is that vertical distance that separates the vertical dimension of occlusion from the vertical dimension at rest. **F**  $VDO \leq VDR - FWS$   $FWS = VDR - VDO$
4. One of the most common reasons that new denture wearers experience "sore spots" soon after insertion is instability of the denture bases caused by occlusal interferences. **T**
5. The buccal shelf and the lingual flange of the mandibular complete denture should be slightly concave in external contour, which may enhance the stability of the denture. **T**

For each of the following five questions, choose one of these responses:

- A= The STATEMENT is true and the REASON is true  
B= The STATEMENT is true, but the REASON is false  
C= The STATEMENT is false

6. STATEMENT: When modifying the maxillary master cast for the posterior palatal seal, the deepest penetration (2 mm) will be made immediately posterior to the tuberosities. REASON: The most depressible soft tissue along the posterior border of the maxillary denture is located in the hamular notches. **A**
7. STATEMENT: Pathology of the supporting tissue must be resolved prior to making preliminary impressions for the new dentures. REASON: Inflammatory papillary hyperplasia is a painful disease that will persist with the new denture. **B**
8. STATEMENT: If properly designed, the new dentures should provide 2-4 mm of freeway space. REASON: Periods of mandibular relaxation remove the occlusal load from the residual ridges and reduce the potential for bone resorption. **B**
9. STATEMENT: The posterior border of the new maxillary complete denture should end on the hard palate. REASON: Retention of the complete denture is dependent on a firm peripheral seal that prevents air leakage under the denture base. **C**
10. STATEMENT: Prior to border molding, the peripheral flanges of the custom edentulous impression trays must be assessed in the mouth by activating the surrounding musculature and inspecting for proper relief. REASON: Casts fabricated from preliminary alginate impressions are often considerably overextended in the vestibular folds. **A**



# Patient Profile #2

29-year-old male in excellent overall health

Missing teeth: none

S: broke upper left tooth while chewing ice; moderate throbbing pain that requires analgesic to control

O: no existing restorations; Bu cusp missing from tooth #12, fracture of the facial surface extends to free gingival margin, pulp exposed; few pocket measurements of 4-5 mm, mainly molar regions; Angle Class I occlusion with bilateral canine guidance, no obvious attrition

A: fractured tooth and irreversible pulpitis #12; localized mild chronic periodontitis

P: RCT #12, scaling and root planing; post/core and PFM crown #12

For each of the following five questions, indicate whether the statement is true (A) or false (B).

A 11. If one were to make the final impression of tooth #12 using a polyether material in a full arch tray, the stiffness of the set material would make the impression more difficult to remove from the mouth compared to polyvinylsiloxane. T

B 12. During the fabrication of the metal substructure for PFM crown #12, most of the positive dimensional change (expansion) occurs during the setting of the die stone. F

B 13. When judging the discrepancy (gap) between a cast metal crown margin and the prepared tooth structure, the threshold of clinical acceptability is generally regarded to be 250-300 microns. F S

A 14. In the process of making a cast post and core for tooth #12, the remaining tooth structure should be prepared for crown coverage prior to making the burnout pattern. T

A 15. One reason for choosing zinc phosphate cement as the luting agent for crown #12 is its low film thickness, which can be as little as 25 microns. T

For each of the following five questions, choose one of these responses:

A= The STATEMENT is true and the REASON is true

B= The STATEMENT is true, but the REASON is false

C= The STATEMENT is false

AA 16. STATEMENT: A triple tray impression procedure is a good option for creating a master cast and die for tooth #12. T  
REASON: The triple tray produces an accurate centric occlusion relationship and is most useful in cases where the likelihood of creating a lateral excursion interference is low.

BB 17. STATEMENT: The PFM crown must be designed so that a marginal seal exists on tooth structure apical to the margins of the cast core. T  
REASON: The design and direct fabrication technique for the cast post/core routinely produces marginal gaps that are less than 50 microns.

AA 18. STATEMENT: If full-arch casts are mounted on a semi-adjustable articulator in order to fabricate the crown for tooth #12, they may be mounted by "hand articulation". F  
REASON: The two requirements for mounting casts by hand articulation are a tripod of vertical support and horizontal stability, both of which exist in this case.

AA 19. STATEMENT: When choosing the porcelain shade for crown #12, it is useful to observe the adjacent natural teeth and the shade guide in various environments.  
REASON: The quality and intensity of light is an important variable that affects the apparent color of an object.

AA 20. STATEMENT: The location and design of the facial margin of PFM crown #12 is determined, in part, by the architecture of the gingival tissue in that area.  
REASON: The use of a traditional subgingival shoulder and bevel may have adverse periodontal effects if the sulcus is very shallow or there is little or no attached gingiva.

**Patient Profile #3**

22-year-old female in excellent overall health

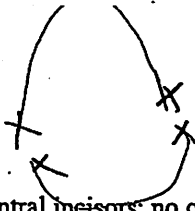
Missing teeth: #1, 16, 17, 32

S: complains of ugly 2-year-old crowns on the maxillary central incisors; no other subjective findings

O: few posterior composite restorations in good condition; no apparent caries lesions; over-contoured BFM crowns #8 and #9; crown margins located 3 mm into the gingival crevice; slight-moderate mobility of teeth #8 and #9

A: localized gingivitis, severe in area of teeth #8 and #9, primary occlusal trauma

P: prophylaxis; new crowns for teeth #8 and #9



For each of the following five questions, indicate whether the statement is true (A) or false (B).

21. Of the two tissues located within the biologic width, the one that is closer to the alveolar crest is the connective tissue attachment. **T**

22. Failure to study the gingival unit and measure the gingival crevice prior to tooth preparation is an error that could account for this patient's periodontal problem. **T**

**B** 23. The best approach for managing a patient (such as this one) with chronically inflamed gingiva that bleeds easily is to infuse the ulcerated crevicular epithelium with a 20% solution of ferric sulfate prior to making the final impression. **F**

**B F** 24. The most likely explanation for the mobility of the maxillary central incisors is localized alveolar bone loss. **F**

**T T** 25. A possible contributing factor for this patient's gingival disease is violation of the biologic width.

For each of the following five questions, choose one of these responses:

A= The STATEMENT is true and the REASON is true

B= The STATEMENT is true, but the REASON is false

C= The STATEMENT is false

**T B** 26. STATEMENT: Orthodontic extrusion is sometimes preferred to surgical crown lengthening in the maxillary anterior region of the mouth. **T**

REASON: An apically repositioned flap alters the normal contour of the gingival tissue, which may then appear as a permanent esthetic defect.

**T A** 27. STATEMENT: Once the old crowns are removed, the final impression for the new crowns must be delayed at least 4 weeks, and possibly much more. **6-12 wks**

REASON: The esthetic outcome of restorative treatment in the maxillary anterior region is directly dependant on the optimal health of the periodontium.

**C C** 28. STATEMENT: If the margins of crowns #8 and #9 extend into the biologic width, gingivoplasty would be the treatment of choice prior to finalizing the preparations for new crowns.

REASON: Gingivoplasty increases the length of the clinical crown and improves access to the finish lines.

**A** 29. STATEMENT: When remaking crowns #8 and #9, a custom incisal guide table should be constructed from the pre-operative maxillary and mandibular study casts mounted on a semi-adjustable articulator. **Provision**

REASON: A custom incisal guide table allows a lab technician to establish functional lingual contours and incisal guidance in the new crowns. **T**

**T C** 30. STATEMENT: The occlusal trauma is probably directly related to the shape of the existing crowns. **2nd**

REASON: Excessive lingual contour commonly results in premature contacts (interferences) in centric occlusion and during mandibular movements.

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**Patient Profile #4**

52-year-old male, hypertension controlled by medication

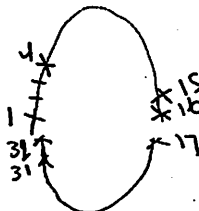
Missing teeth: #1, 4, 15, 16, 17, 31, 32

S: would like to replace missing upper right tooth

O: numerous posterior amalgam and composite restorations, many large, some failing; several new caries lesions, including recurrent; few periodontal pocket measurements of 4-5 mm, mainly molar regions; slight-moderate wear of all cusps and incisal edges

A: dental caries; defective restorations; missing teeth; localized mild chronic periodontitis; bruxism

P: scaling and root planing; replace several amalgam/composite restorations; 3-unit PFM bridge #3-5; 2 core build-ups and crowns, teeth #7 and 29



For each of the following five questions, indicate whether the statement is true (A) or false (B).

TA 31. During the fabrication of the fixed prosthesis #3-5, if posterior segmental occlusal registrations were to be used to help mount the mandibular cast against the maxillary master cast on an articulator, a rigid-setting material (e.g., Duralay, Blu-Mousse) would be indicated on the patient's right side.

BA 32. A common source of error in the solder indexing process for the metal substructure of a 3-unit fixed prosthesis is the slight movement that may occur due to the setting expansion of the Duralay material.

BF 33. One benefit of placing the margins of the abutment crowns #3 and #5 at least 1 mm into the gingival crevice is that the risk of developing secondary caries lesions would be significantly reduced.

B 34. When preparing the 2-piece metal substructure for a soldered connector (fixed prosthesis #3-5), one must create two opposing flattened surfaces that are separated, prior to indexing, by a gap of 1-1.25 mm. *Thickness of bond and*

BA 35. The same porcelain shade(s) chosen for the premolar bridge abutment must be used on the pontic and the molar abutment in order to create a natural appearance.

For each of the following five questions, choose one of these responses:

A= The STATEMENT is true and the REASON is true

B= The STATEMENT is true, but the REASON is false

C= The STATEMENT is false

AA 36. STATEMENT: When using the VITA guide to determine porcelain shades for the fixed prosthesis #3-5, one should choose the predominant hue first by studying the portions of the neighboring natural teeth nearest to the gingiva. REASON: Natural teeth typically exhibit the highest chroma and lowest value in the cervical third. T

C 37. STATEMENT: If full-arch casts are mounted on a semi-adjustable articulator to fabricate the fixed prosthesis from #3 to #5, they may be mounted by "hand articulation". REASON: A tripod of stable centric contacts exists in this case. *Crp to form*

AA 38. STATEMENT: Metal occlusal surfaces would be a beneficial feature of the fixed prosthesis, and this option must be discussed with the patient. T REASON: The patient's parafunctional habit may increase the risk of attrition of the opposing teeth if porcelain occlusal surfaces are used.

AA 39. STATEMENT: It would be medically and ethically appropriate to delay prosthodontic treatment for this patient until disease prevention measures are instituted. T REASON: The patient exhibits evidence of high caries risk, which means the longevity of the new prosthesis, as well as the other restorations, could be adversely affected.

C 40. STATEMENT: A metal collar at the margins of each bridge abutment crown contributes to the durability of the prosthesis by stiffening the substructure. *limits gingival recession* REASON: Flexure of a metal substructure leads to porcelain fracture due to the low modulus of elasticity of ceramic materials. ?

**Patient Profile #5**

60-year-old insulin-dependant male

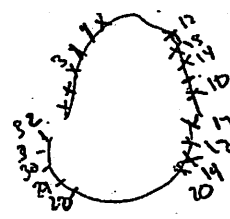
Missing teeth: #1, 2, 3, 4, 6, 12, 13, 14, 16, 17, 18, 19, 20, 28, 29, 30, 31, 32

S: broken upper removable partial denture (unwearable) loose upper front teeth

O: 6-8 mm periodontal pockets around remaining maxillary anterior teeth with Class 3 mobility; #15 contacts mandibular residual ridge in C.O.; large fractured amalgam restoration #21

A: localized severe chronic periodontitis of the maxilla; defective maxillary prosthesis

P: scaling and root planing; core build-up and PFM crown #21 (new removable prostheses)



For each of the following five questions, indicate whether the statement is true (A) or false (B).

41. The most common error committed during a functional impression for the altered cast technique is failing to ensure that the rests of the RPD framework remain fully seated in their rest seats during the entire procedure.
42. If an immediate maxillary complete denture is elected, it would be impossible to evaluate a set-up of the posterior teeth in the patient's mouth prior to the insertion of the processed denture.
43. The maxillary and mandibular removable prostheses should be constructed with the master casts articulated in the centric relation position. subject
44. When determining the best path of insertion for a mandibular removable partial denture framework, the principle determinant would be the available undercut on the facial surface of tooth #27. 322
45. Resin modified glass ionomer is contra-indicated as the final luting cement for PFM crown #21 because of its setting expansion. only PSC

For each of the following five questions, choose one of these responses:

- A= The STATEMENT is true and the REASON is true  
B= The STATEMENT is true, but the REASON is false  
C= The STATEMENT is false

46. STATEMENT: The best time to complete the crown for tooth #21 is after the periodontal therapy, but before extracting any teeth. 7  
REASON: The mandibular partial denture framework cannot be fabricated until the crown is completed.
47. STATEMENT: The altered cast procedure is indicated for the fabrication of a mandibular partial denture for this patient. T  
REASON: A functional impression results in a better fitting metal framework for distal extension cases.
48. STATEMENT: The treatment of choice for the maxillary arch is a complete denture.  
REASON: Teeth #s 7, 8, 9, 10, 11 and 15 are hopeless and a complete denture would be more functional than a removable partial denture retained by the single maxillary premolar. (5) 789 10-11 x
49. STATEMENT: If the patient requests an immediate maxillary complete denture, teeth #s 5 and 15 should be extracted immediately, and teeth #s 7, 8, 9, 10, and 11 should be extracted when the denture is inserted. T  
REASON: The two posterior teeth serve no purpose and the additional healing time would improve the stability of the immediate denture.
50. STATEMENT: Constructing a maxillary complete denture that opposes natural mandibular anterior teeth only (i.e., without also replacing the mandibular posterior teeth) is considered malpractice.  
REASON: All patients treated in this way invariably exhibit accelerated maxillary anterior ridge resorption ("combination syndrome").

BEST WISHES FOR A RESTFUL HOLIDAY

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