



School of Dentistry
Department of Restorative Dentistry

corrected

RESTORATIVE DENTISTRY V (D553)
Final Examination
December 15, 2006

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TEST CODE 03

INSTRUCTIONS

- Verify that you have an examination booklet with eight pages and sixty-eight 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.
- 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.
- You 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.

1. If tooth #6 is found to be predominantly Vita shade A3.5 and tooth #4 is predominantly A2, then the canine has

- A
- a. higher chroma and lower value compared to the premolar
 - b. lower chroma and higher value compared to the premolar
 - c. higher chroma and higher value compared to the premolar
 - d. lower chroma and lower value compared to the premolar

U U
A2 3.5
↑ chroma
↓ value

2. A clinician plans to install a PFM crown on tooth #14, which is vital and has an amalgam core build-up. Which of the following luting cement types is contra-indicated for this procedure?

- E
- a. zinc phosphate
 - b. resin modified glass ionomer
 - c. glass ionomer
 - d. composite resin
 - e. none of the above is contra-indicated

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3. Which one of the four Vita color families is described as reddish-grey?

- D
- a. A
 - b. B
 - c. C
 - d. D

A - Brown
B - Yellow
C - grey
D - pink

4. When making a metal casting for a PFM crown using the lost wax method, most of the negative dimensional change (shrinkage) occurs as the

- A
- a. molten metal alloy solidifies
 - b. die stone sets
 - c. investment material sets
 - d. molten wax solidifies on the die
 - e. impression material sets

← answer

5. The glass ionomer cements were originally developed from which predecessors?

- E
- a. composite resin cement and silicate cement
 - b. silicate cement and zinc phosphate cement
 - c. zinc phosphate cement and polycarboxylate cement
 - d. polycarboxylate cement and composite resin cement
 - e. silicate cement and polycarboxylate cement

6. Which of the following factors that influence RPD design can be assessed by examining accurately mounted study casts?

- E
- a. relationship of the teeth to the edentulous spaces ✓
 - b. irregularities of the existing occlusal plane ✓
 - c. undercuts of soft and hard tissue ✓
 - d. two of the above
 - e. a, b and c above

7. How many clasps and indirect retainers are needed for a unilateral free-end RPD (Kennedy Class II)?

- A
- a. 3 clasps, 1 indirect retainer
 - b. 4 clasps, 1 indirect retainer
 - c. 3 clasps, 2 indirect retainers
 - d. 4 clasps, 2 indirect retainers
 - e. 2 clasps, 2 indirect retainers

Patient Profile #1

24-year-old female in excellent overall health; missing teeth: #1, 8, 16, 17, 32

S: complains of an unattractive 2 year-old 3-unit PFM FPD in the maxillary anterior area and puffy gums

O: few posterior composite restorations in good condition; no apparent caries lesions; FPD units grossly over-contoured facially and lingually (bulbous); abutment crown margins located 3 mm into the gingival crevice; bleeding upon probing around the abutment crowns; slight mobility of teeth #7 and #9

A: localized gingivitis, severe in area of teeth #7 and #9; primary occlusal trauma

P: prophylaxis; new FPD

For each of the questions on this page related to the patient profile described above, 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

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8. STATEMENT: When designing the new FPD, it would be desirable to cover the entire lingual fossa and cingulum of the three units with porcelain.
REASON: A glazed ceramic surface resists plaque accumulation and feels natural to the tongue. C
9. STATEMENT: When choosing the porcelain shades for the new FPD, it is useful to view the natural teeth and shade guides in different light sources.
REASON: Metamerism may affect the esthetic outcome of the treatment. A
10. STATEMENT: Once the existing FPD is removed and a provisional bridge is placed, the final impression for the new FPD should be delayed several weeks, and possibly much longer.
REASON: The esthetic outcome of restorative treatment in the maxillary anterior region is dependant on the optimal health of the periodontium. A
11. STATEMENT: If the margins of the existing abutment crowns #7 and #9 extend into the biologic width, gingivoplasty would be the treatment of choice prior to finalizing the preparations for new crowns. F
REASON: Gingivoplasty increases the length of the clinical crown and improves access to the finish lines. C
12. STATEMENT: Rigidity should be considered a desirable characteristic of the new FPD metal substructure. T
REASON: Feldspathic porcelains have low modulus of elasticity values. F
↑ MOE
13. STATEMENT: A custom incisal guide table should be constructed from the pre-operative maxillary and mandibular study casts mounted on a semi-adjustable articulator. F
REASON: A custom incisal guide table allows a lab technician to establish functional lingual contours and incisal guidance in the prosthesis. C
14. STATEMENT: The occlusal trauma is probably directly related to the shape of the prosthesis. T
REASON: Excessive lingual contour commonly results in premature contacts (interferences) in centric occlusion and during mandibular movements. T
15. STATEMENT: A possible contributing factor for this patient's gingival disease is violation of the biologic width. T
REASON: Crown margins placed into the zone of the gingival attachment produce an inflammatory reaction. T
16. STATEMENT: The poor contour of the existing FPD indicates that the axial surfaces of the abutment teeth were excessively reduced prior to impression-making. F
REASON: Tooth preparations for PFM crowns usually require 1.2 to 1.5 mm of axial reduction. C
17. STATEMENT: If the (one-piece) metal substructure for the new FPD exhibits a slight anterior-posterior "rock", a solder index should be made. T
REASON: Sectioning and soldering the metal substructure can correct a misalignment problem that may exist between the two abutment crowns. T
18. STATEMENT: When using the Vita shade guide, it is advisable to gaze periodically at a blue or blue-gray object (for example, a patient napkin).
REASON: Resting the eyes by looking at a complimentary color improves the visual response and acuity to yellow/orange. A
19. STATEMENT: The most likely explanation for the mobility of the maxillary central incisors is localized alveolar bone loss. F
REASON: Hyper-occlusion of dental restorations causes chronic periodontitis. C
20. STATEMENT: The best approach to prepare this patient for a final impression for the new FPD is to infuse the chronically inflamed and ulcerated crevicular epithelium with a 20% solution of ferric sulfate (Viscostat).
REASON: Viscostat shrinks inflamed tissue and reduces capillary permeability. C

Patient Profile #2

39-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

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

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21. STATEMENT: The use of a traditional subgingival shoulder and bevel for tooth #12 may be contraindicated if the sulcus is very shallow or there is little or no attached gingiva. **T**
REASON: Tooth preparation and impression-making procedures for full crown restorations can traumatize the soft tissue and lead to chronic periodontal disease. **T**
22. STATEMENT: A self-etching composite resin cement would be contraindicated for the installation of a cast post and core in tooth #12. **T**
REASON: Setting expansion of the cement would increase the risk of root fracture. **T**
23. STATEMENT: If full-arch casts were to be mounted on a semi-adjustable articulator to fabricate the crown for tooth #12, two posterior occlusal records ("bite registrations") would be required. **F**
REASON: The casts lack a tripod of vertical stops.
24. STATEMENT: The PFM crown should be designed so that a marginal seal (ferrule) exists on tooth structure apical to the margins of the core. **T**
REASON: The direct fabrication technique for a cast post/core routinely produces marginal gaps that are equivalent to those produced using the lost wax method. **B**
25. STATEMENT: Immediately before investing the wax pattern for the crown casting, additional wax should be added to make the margins thicker than desired in the final restoration. **F**
REASON: The lost wax casting process is prone to failure when the marginal bevels are less than 45 degrees.
26. STATEMENT: Zinc phosphate cement would be a good choice for installing a post in tooth #12. **T**
REASON: In addition to good compressive strength, ZP cement has low film thickness (as little as 25 microns). **T**
27. STATEMENT: A maxillary polyvinylsiloxane impression would likely be more difficult to remove from the mouth than a polyether impression. **F**
REASON: The PVS materials are much stiffer than the polyethers when fully set. **PE > PVS**
28. STATEMENT: If an inspection of the metal crown casting on the stone die reveals a marginal gap of 250-300 microns, this discrepancy should be considered clinically acceptable. **F**
REASON: The gap will be filled with cement, which will provide a durable marginal seal and eliminate any risk of microleakage.
29. STATEMENT: When making an impression for crown #12, it would be preferable to use a metal tray instead of a plastic tray. **A**
REASON: Flexure of the tray would increase the risk of error (inaccuracy) in the impression process.
30. STATEMENT: Die relief should be used on the stone die for crown #12 before applying separating agent ("die lube"). **A**
REASON: A 25 micron spacer used on the stone die will facilitate complete seating of the crown during final installation.
31. STATEMENT: When considering setting chemistry, the glass ionomer cements have more in common with zinc phosphate cement than they do with the composite resin cements. **A**
REASON: The glass ionomer and zinc phosphate cements set by an acid-base reaction.
32. STATEMENT: When using the Vita guide to determine porcelain shades for crown #12, one should choose the predominant hue (color family) by studying the portions of the neighboring natural teeth closest to the gingiva. **A**
REASON: Natural teeth typically exhibit the highest intensity of color in the cervical third.

↑ Chroma
↓ Value

Patient Profile #3

60-year-old insulin-dependant male; missing teeth: #1-3, 6, 12, 14-16, 17-20, 30-32

S: broken upper removable partial denture (unwearable); complains about appearance of loose front teeth; admits he doesn't wear a mandibular RPD delivered 5 years ago

O: 6-8 mm periodontal pockets around all maxillary teeth with Class 3 mobility; large fractured amalgam restoration #21

A: gen. severe periodontitis (maxilla); loc. mild periodontitis (mandible); defective prosthesis; poor facial esthetics

P: scaling and root planing; core build-up and all-metal crown #21; new removable prosthesis/prostheses

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B 33. STATEMENT: If a mandibular partial denture were to be fabricated for this patient, the altered cast procedure would be indicated. A

REASON: A functional impression results in a better fitting metal framework for Kennedy Class I cases. B ↓ RRR

C 34. STATEMENT: Constructing a maxillary complete denture without replacing the mandibular posterior teeth would be malpractice. F

REASON: All patients treated in this way exhibit severe maxillary anterior ridge resorption ("combination syndrome").

A 35. STATEMENT: The treatment of choice for the maxillary arch is a complete denture. T

REASON: A functional, esthetic outcome with a good prognosis cannot be achieved with a partial denture. T

A 36. STATEMENT: If the patient requests an immediate maxillary complete denture, teeth #s 4, 5 and 13 should be extracted immediately, and teeth #s 7, 8, 9, 10, and 11 should be extracted when the denture is inserted.

REASON: Extracting the posterior teeth would permit a wax try-in of the posterior denture teeth prior to final processing.

C 37. STATEMENT: The best time to complete the crown for #21 is after periodontal therapy, but before extracting any teeth. F

REASON: The mandibular partial denture framework cannot be fabricated until the crown is completed.

answer C 38. STATEMENT: If a conventional clasp-retained RPD were to be fabricated for this patient, a "triple tray" impression would be an acceptable option for creating a master cast and die for crown #21. T

REASON: Triple-trays have been shown to produce excellent impressions of prepared teeth and provide an accurate occlusal registration at the same time. T

answer A 39. STATEMENT: If a maxillary complete denture and a mandibular partial denture were to be fabricated for this patient, the master casts would be mounted on an articulator using a centric relation record. C

REASON: Centric relation occlusion is the most repeatable inter-arch relationship when there are no occlusal contacts remaining between natural teeth.

A 40. STATEMENT: When making a functional impression for the altered cast technique, pressure must be applied only to the metal rests within their rest seats. T

REASON: Pressure applied to the impression trays will result in misalignment of the dentate and edentulous portions of the new master cast. T

B 41. STATEMENT: When determining the best path of insertion for a mandibular RPD framework, an important determinant would be the available undercut on the facial surface of tooth #29. T

REASON: The retentiveness of the clasp assemblies is by far the single most important factor that determines the success or failure of a conventional RPD. B

A 42. STATEMENT: If a mandibular RPD with cast clasps is made for this patient, the necessary changes to tooth #29 (e.g., guide plane, rest seat) should be made before making the final impression for crown #21.

REASON: Since the ideal abutment morphology can be created with the wax pattern for crown #21, a path of insertion should be selected that minimizes the enamel reduction required for abutment tooth #29.

A 43. STATEMENT: A surgical template would facilitate the delivery of an immediate denture for this patient.

REASON: A surgical template assists the clinician in shaping the anterior maxillary tissue to closely resemble the ridge form in the complete denture.

C 44. STATEMENT: This patient is an excellent candidate for a new conventional RPD.

REASON: The absence of molars typically results in severely deficient masticatory ability and reduced nutritional intake.

B 45. STATEMENT: If a mandibular RPD metal framework were to be fabricated for this patient, alginate (irreversible hydrocolloid) would be a good choice for impression-making. T

REASON: Alginate is more accurate and records finer detail than the polyvinyl siloxane and polyether impression materials.

Patient Profile #4

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

S: loose dentures with worn and broken teeth, 18 years old, never relined

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

A: inflammatory papillary hyperplasia; defective complete prostheses

P: new complete dentures

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

C= The STATEMENT is false

- A 46. STATEMENT: If properly designed, the new dentures should provide 2-4 mm of freeway space. T
REASON: Periods of mandibular relaxation remove the occlusal load from the residual ridges, which may help reduce the rate of alveolar bone resorption. T
- A 47. STATEMENT: Before 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. T
REASON: Casts fabricated from preliminary alginate impressions are often overextended in the vestibular folds.
- C 48. STATEMENT: The posterior border of the new maxillary complete denture should end on the hard palate. F
REASON: Retention of the complete denture is dependent on a firm peripheral seal that prevents air leakage under the denture base.
- B 49. STATEMENT: Pathology of the supporting tissue must be resolved before making preliminary impressions for the new dentures. T
REASON: Inflammatory papillary hyperplasia is a very painful disease that would persist with the new denture. F
- C 50. STATEMENT: If the patient reports a sore spot in a mucobuccal fold at the first recall visit, the first course of action should be to mark and shorten the offending denture flange. F
REASON: Occlusal interferences that result in denture instability are a common cause of sore spots.
- A 51. STATEMENT: When the new dentures are inserted, the vertical dimension of occlusion should be less (shorter) than the vertical dimension at rest. T
REASON: Freeway space is required for patient comfort. T
- A 52. STATEMENT: It would be reasonable to assume that the stability of this patient's mandibular denture has diminished in the 18 years it has been in service.
REASON: Alveolar bone loss leads to a reduction in the size of the denture-bearing area, particularly in the mandible.
- C 53. STATEMENT: The fact that this elderly patient wore her dentures for 18 years is positive proof that the prostheses were originally made to the highest technical standards of quality. F
REASON: Older, experienced denture wearers are typically much less tolerant of poorly fitting dentures and much more motivated to seek improvements compared to their younger counterparts.
- A 54. STATEMENT: During the fabrication of the new dentures, the "mmm" or humming test is useful in confirming the proper inter-occlusal distance (freeway space). T
REASON: Making the "M" sound depresses the mandible slightly from the vertical dimension of occlusion, revealing the desired vertical dimension at rest. T
- C 55. STATEMENT: This patient is a good candidate for the immediate denture procedure using the combination impression technique.
REASON: Experienced denture wearers are reluctant to surrender their prostheses for more than a few days.
- B 56. STATEMENT: When evaluating the preliminary prosthetic tooth set-up (wax try-in), it would be useful to ask the patient to make "F" and "V" sounds.
REASON: These "affricative" consonants represent the definitive test for closest speaking space.

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57. While recording the centric relation position using complete maxillary and mandibular occlusion rims, the

- E**
- a. Aluwax recording medium must be softened in order to avoid resistance during closure ✓
 - b. recording bases should never make contact with each other ✓
 - c. patient should stop 1-2 mm short of full closure ✓
 - d. two of the above
 - e. a, b and c above

58. What distinguishes the two different impression techniques described in class for immediate complete dentures (traditional and combination)?

- D**
- a. alginate may only be used for the traditional method ✗
 - b. border molding is only required for the combination method ✗
 - c. stock impression trays are used for the traditional method ✗
 - d. a single final impression tray is used for the traditional method

59. Which of the following alternative removable partial denture designs utilizes undercuts on the facial surfaces of the abutment teeth for retention?

- C**
- a. Esthetic clasp
 - b. Equipoise
 - c. Valplast
 - d. none of the above

60. The published findings of several randomized clinical trials suggest that wearing clasp-retained RPDs is associated with a higher incidence of caries lesions compared to control groups. Consequently, clinicians who treatment plan RPDs should

- E**
- a. view these prostheses as a potential risk factor for dental caries ✓ (low)
 - b. evaluate caries risk and provide appropriate therapies to reduce risk ✓
 - c. consider recalling these patients for examination at shorter intervals ✓
 - d. two of the above
 - e. a, b and c above

61. When surveying an abutment tooth for a RPD, a 0.01 inch undercut would be desirable for a(n)

- A**
- a. I-bar ✓
 - b. wrought wire clasp ✓
 - c. circumferential clasp
 - d. two of the above
 - e. a, b and c above

62. Of the following outcomes that may be associated with prosthodontic treatment, which pair represents the two most likely to motivate a patient to wear a new conventional RPD?

- C**
- a. replacement of missing posterior teeth...prevention of ridge resorption
 - b. enhanced chewing ability...prevention of over-eruption
 - c. replacement of missing anterior teeth...enhanced chewing ability
 - d. prevention of ridge resorption...prevention of over-eruption
 - e. replacement of missing anterior teeth...prevention of ridge resorption

63. When an all tooth-borne RPD metal framework is fully seated in the mouth, the framework should

- A**
- a. permit the patient to close in the maximum intercuspal position ✓
 - b. keep the anterior teeth separated by 0.5 mm
 - c. increase the patient's vertical dimension of occlusion slightly
 - d. eliminate the patient's centric slip
 - e. decrease patient's vertical dimension of occlusion slightly

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64. Which of the following actions are believed to help reduce the risk of mandibular ridge resorption for Kennedy Class I RPD cases?

- E
- a. employing the secondary functional impression/alters cast procedure ✓
 - b. designing the denture bases for maximum coverage of the retromolar pads and buccal shelves ✓
 - c. regular patient examinations and evaluation for denture base relines ✓
 - d. two of the above
 - e. a, b and c above

65. Long-term denture wearers often exhibit a condition known as "flabby ridges", which is often observed in the anterior regions of both arches and is usually the result of

- A
- a. bone resorption
 - b. chronic inflammation
 - c. over-extended borders
 - d. bacterial and fungal toxins

66. Progressive alveolar bone resorption following tooth loss

- D
- a. has a complex multi-factorial etiology ✓
 - b. may be inhibited with the placement of root-form implants ✓
 - c. can be prevented by withholding conventional removable prosthetic treatment
 - d. two of the above
 - e. a, b and c above

67. Patients whose dentures produce an excessively wide vertical dimension of occlusion often report

- D
- a. an intense burning sensation at the commissures of the mouth ✗
 - b. a feeling of jaw fatigue that increases during the day ✓
 - c. relief of discomfort when the dentures are removed ✓
 - d. two of the above
 - e. a, b and c above
- TVDO

68. On New Year's Eve I will propose a toast to

- A
- a. good health and long life for all my loved ones
 - b. the end of political and religious extremism in all reaches of the globe
 - c. lots of crowns and bridges in my immediate future
 - d. adequate shelter, nutrition and healthcare for all human beings
 - e. a resurgence of the Fightin' Phils in 2007

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BEST WISHES FOR A RESTFUL HOLIDAY