

# Council of Interstate Testing Agencies, Inc



## 2012 Manikin-Based Candidate Examination Manual

Council of Interstate Testing Agencies, Inc  
1003 High House Road, Suite 101  
Cary, North Carolina 27513  
Phone: (919) 460-7750 • Fax: (919) 460-7715  
info@citaexam.com • <http://www.citaexam.com>

02/01/2012

## **IMPORTANT NOTICE**

Every effort has been made to ensure that this manual is accurate, comprehensive, clear and up-to-date. In the rare instances when examination related instructions need to be updated or clarified during the examination year those changes will be posted on CITA's website (<http://www.citaexam.com> "Examination Manuals"). There will also be other test related material sent to candidates directly by the CITA office.

All candidates who take the CITA examination are responsible for reading and understanding the CITA examination manual(s), any website documented changes to the published CITA manual(s) and for reviewing and understanding all other material provided by CITA. If, in reviewing any CITA provided material, questions arise, it is the candidate's responsibility to resolve those questions by directing them to the CITA office at the earliest possible date. For candidate's convenience, CITA's address, e-mail address, telephone number, website and facsimile number appear below.

Prior to taking a CITA examination, each candidate will be required to sign forms certifying that he/she has reviewed the CITA manual, viewed the on-line candidate tutorials, read other material provided by CITA and that he/she has addressed and resolved all questions prior to the date of the examination.

It is also extremely important that candidates maintain a current mailing address with CITA. This is the only way to ensure that there will be a timely receipt of important material such as the pretest confirmation package or the post examination notification of test results. Any changes of address must be submitted in writing and sent by fax, email or hardcopy to the address indicated below:

### **Address**

Council of Interstate Testing Agencies  
1003 High House Road, Suite 101  
Cary, North Carolina 27513  
Telephone: (919) 460-7750  
Fax (919) 460-7715  
[info@citaexam.com](mailto:info@citaexam.com)  
<http://www.citaexam.com>

## ADMINISTRATION OF THE CITA MANIKIN-BASED EXAMINATION



**The Manikin Candidate Examination Manual contains information relative to the administrative elements and criteria employed during the CITA manikin examination process. The candidate should read and understand all aspects of the administration of the CITA manikin examination prior to taking the examination. CITA examiners and staff are available to clarify the instructional materials presented in this manual; however, they will not provide guidance in materials or areas that should be inherent in the understanding of manual content.**

# Table of Contents

## **PART I EXAMINATION ASSIGNMENTS AND SCHEDULING 1**

1. PARTS II AND III: MANIKIN-BASED EXAMINATIONS (ENDODONTICS/PROSTHODONTICS)	1
2. EXAMINATION SCHEDULE CHANGES	3
3. TIMELY ARRIVAL	3
4. REGISTRATION FOR PARTS II AND III	3

## **PART II - STANDARDS OF CONDUCT 4**

1. MAINTAINING PROFESSIONAL STANDARDS	4
2. USE OF AUXILIARY PERSONNEL	5
3. ASSIGNED PROCEDURES AND TEETH	5
4. USE OF ELECTRONIC EQUIPMENT	5
5. USE OF INNOVATIVE TECHNOLOGY	5
6. MISAPPROPRIATION, OR DAMAGE OF EQUIPMENT, INSTRUMENTS OR SUPPLIES	5
7. EXAMINATION GUIDELINES, MATERIALS, AND RECORDS	6
8. EXAMINATION PROCEDURES AND TIMEFRAMES	6
9. EXAMINATION SECURITY	6
10. EXAMINATION PREPARATION	6
11. EXAMINER INSTRUCTIONS	7
12. ACTIONS RESULTING IN DISMISSAL FROM AND/OR FAILURE OF THE EXAMINATION	7

## **PART III - GUIDELINES 9**

1. ANONYMITY	9
2. AUTHORIZED PERSONNEL	9
3. BARCODE LABELS	9
4. COMMUNICATIONS FROM AND WITH EXAMINERS, EXAMINATION OFFICIALS AND EXAMINATION STAFF	9
5. CRITICAL DEFICIENCIES	10
6. CRITICAL ERRORS	10
7. EQUILIBRATION	12
8. EQUIPMENT FAILURE	12
9. EVALUATION GRADE SHEETS AND PROCEDURES	12
10. IDENTIFICATION BADGES	12
11. INFECTION CONTROL STANDARDS	12
12. INSTRUMENTS AND EQUIPMENT	12
13. PATIENT SIMULATION	13
14. PROGRESS FORMS	13
15. RECONTOURING	13

16. ROLE OF THE CLINIC FLOOR EXAMINER	14
17. TOOTH NUMBERING SYSTEM	14
18. SECURITY CHECKS	14

**PART IV - EXAMINATION SCORING METHOD 15**

1. EXAMINERS	15
2. EXAMINATION SCORING SYSTEM	15
3. PART II AND III MANIKIN-BASED EXAMINATION)	15
4. INFECTION CONTROL	16
5. PATIENT MANAGEMENT AND TREATMENT	17

**PART V - ADMINISTRATION FIXED-PROSTHODONTICS EXAMINATION 18**

1. EXAMINATION CONTENT AND SCORING	18
2. TREATMENT CRITERIA OVERVIEW	18
3. TYPODONT	19
4. PREPARATION OF TEETH	20
5. STINT FABRICATION	20
6. MOUNTING THE TYPODONT OR MANIKIN	25
7. DISMANTLING THE TYPODONT OR MANIKIN	25
8. EXAMINATION COMPLETION AND EVALUATION	25
9. CHECK-OUT PROCEDURES	25

**PAR VI - ADMINISTRATION ENDODONTICS EXAMINATION 26**

1. EXAMINATION CONTENT AND SCORING	26
2. TREATMENT CRITERIA OVERVIEW	26
3. TYPODONT MODULES	27
4. PREPARATION OF TEETH	27
6. DISMANTLING THE TYPODONT OR MANIKIN	28
7. RUBBER DAM ISOLATION	28
8. ENDODONTIC TREATMENT	28
9. REFERENCE POINT	28
10. TEMPORARY MATERIAL	29
11. EXAMINATION COMPLETION AND EVALUATION	29

**VII - EXAMINATION GRADING CRITERIA 30**

# PART I

## EXAMINATION ASSIGNMENTS AND SCHEDULING

### 1. Parts II and III: Manikin-Based Examinations (Endodontics/Prosthodontics)

Candidates will be informed as to the date on which they are to complete Parts II and III of the CITA examination and will be informed of their assignment two (2) to three (3) weeks in advance of the examination date. Candidates should note that the Endodontic and Prosthodontic Examinations have specific time restraints for each examination, and all procedures for each examination must be completed within the allotted time for that examination. The following schedule is an example of the administration of these examinations; however, examination schedules are not finalized until after the examination application deadline. Each candidate's actual schedule will be mailed to the candidate within three (3) weeks of the examination date.

<i>Time</i>	<i>Assignment</i>
7:30 am – 7:45 am	Candidate Registration (Prosthodontic Examination)
7:45 am – 8:00 am	Candidates obtain instruments and materials for Prosthodontic Exam
8:00 am – 8:30 am	Prosthodontic Set-Up (Candidate allowed into simulation labs)
8:30 am – 11:30 am	Prosthodontic Examination
	LUNCH
12:30 pm – 12:45 pm	Candidate Registration (Endodontic Examination)
12:45 pm – 1:00 pm	Candidate Obtain Instruments/Supplies
1:00 pm – 1:30 pm	Endodontic Set-Up (Candidate allowed into simulation labs)
1:30 pm – 4:30 pm	Endodontic Examination

#### A. PROSTHODONTIC EXAMINATION

**CANDIDATE REGISTRATION WILL BE CONDUCTED IN AN AREA OUTSIDE THE SIMULATION LABORATORY WHERE THE EXAMINATION WILL BE CONDUCTED. CANDIDATES SHOULD CONSULT THEIR MATARIALS FOR THE ROOM NUMBER ASSIGNED FOR REGISTRATION.**

**BY 8:00 A.M. CANDIDATES MUST HAVE IN THEIR POSSESSION ALL NECESSARY INSTRUMENTS AND MATERIALS TO BEGIN THE FIXED-PROSTHODONTIC EXAMINATION.**

**Candidates will not be allowed into the simulation laboratory until 8:00 am for the prosthodontic examination.**

Between 8:00 am and 8:30 am Clinic Floor Examiners will assist candidates with preparing for the Fixed-Prosthodontics Examination. Examiners will assist in the mounting of the carrier trays into the simulation units, or of the carrier trays and articulators into the simulation units. The candidate will fabricate all stints during the Set Up period.

At 8:30 am. Fixed-prosthodontic treatment begins for all candidates. There is no extension of time due to starting treatment after 8:30 A.M. Candidates **MUST** complete the Fixed-Prosthodontics Examination by 11:30 am.

When the candidate has finished the prosthodontic portion of the examination the candidate must first obtain permission from the Clinic Floor Examiner to dismantle the typodont. An Examiner will come to the candidate's clinic area., oversee the dismantling of the typodont and assist the candidate in submitting the carrier trays and typodonts to CITA staff.

## **B. ENDODONTIC EXAMINATION**

**CANDIDATE REGISTRATION WILL BE CONDUCTED IN AN AREA OUTSIDE THE SIMULATION LABORATORY WHERE THE EXAMINATION WILL BE CONDUCTED. CANDIDATES SHOULD CONSULT THEIR MATARIALS FOR THE ROOM NUMBER ASSIGNED FOR REGISTRATION.**

**BY 1:00 P.M. CANDIDATES MUST HAVE IN THEIR POSSESSION ALL NECESSARY INSTRUMENTS AND MATERIALS TO BEGIN THE ENDODONTICS EXAMINATION**

**Candidates will not be allowed into the simulation laboratory until 1:00 pm for the endodontic examination.**

Candidates must be ready to set-up for the Endodontics Examination at 1:00 P.M. Between 1:00 pm and 1:30 pm the Clinic Floor Examiner must verify that:

- (1) The tooth for the endodontic fill has been measured and secured in the typodont
- (2) The manikin head is properly assembled; and
- (3) Any defective equipment or materials have been identified and corrected or replaced. The Endodontics Examination will begin at 1:30 pm. Candidates may NOT begin the Endodontics Examination until instructed by the Clinic Floor Examiners.

When the candidate has finished the endodontic portion of the examination the candidate must first obtain permission from the Clinic Floor Examiner to dismantle the typodont. An Examiner will come to the candidate's clinic area, oversee the dismantling of the typodont and assist the candidate in submitting the carrier trays and typodonts to CITA staff.

**2. Examination Schedule Changes**

The examination assignment schedule is considered final when issued and mailed to the candidate. Requests for a change will not be considered or made once the schedule has been distributed. Dental school personnel do not have the authority to accept a candidate for an examination at their site or to make any assignment changes within an examination series. Such arrangements concluded between dental school personnel and a candidate may preclude the candidate from being admitted to the examination, as well as result in forfeiture of all fees. CITA's Chief Examiner is the only authorized individual who may consider a request for a schedule change. If unusual circumstances warrant such a change and space is available, it is the decision of CITA's Chief Examiner whether to approve such a request. This decision is made on-site on the day of examination, and prior requests are neither accepted nor considered.

**3. Timely Arrival**

The candidate is expected to arrive at the examination setting at the designated time stipulated in the published schedule for that particular examination. Failure to follow this guideline may result in failure of the examination currently being taken by the candidate.

**4. Registration for Parts II and III**

Candidates **MUST** be present for registration between 7:30 am - 7:45 am for the fixed-prosthodontics examination and 12:45 pm – 1:00 pm for the endodontic examination, for specific instructions and distribution of examination materials. In order to receive an examination packet and be admitted to orientation, the candidate **MUST** present government-issued photo identification (e.g., valid driver's license, military identification card, passport) or a school-issued identification card. Candidates who do not have the required identification **WILL NOT** be admitted to the examination. Candidates who are **NOT** registered between 7:30 am - 7:45 am (Fixed-Prosthodontic Exam) or 12:45 pm - 1:00 pm (Endodontic Exam) **WILL NOT** be allowed to participate in the examination.

## PART II STANDARDS OF CONDUCT

### 1. Maintaining Professional Standards

As a participant in an examination to assess professional competency, each candidate is expected to maintain professional standards before, during and after the examination. The candidate's conduct and treatment standards will be observed during the examination and failure to maintain appropriate conduct and/or standards may result in point penalties, failure, and/or dismissal from the examination. Each candidate will be expected to conduct himself/herself in an ethical, professional manner and maintain a professional appearance at all times. Candidates are prohibited from using any study or reference materials during the examination except for CITA approved materials. Any substantiated evidence of falsification or intentional misrepresentation of application requirements, collusion, dishonesty, and use of unauthorized assistance or intentional misrepresentation during registration, pre-examination, or during the course of the examination, **SHALL AUTOMATICALLY RESULT IN DISMISSAL FROM AND FAILURE OF THE ENTIRE EXAMINATION**, as well as forfeiture of all examination fees for the current examination. Furthermore, the candidate cannot apply for re-examination for one (1) full year from the time of the infraction. Additionally, all state dental boards will be notified of any candidate cited for dishonesty during the examination process. In some states, candidates failed for dishonesty may be permanently ineligible for licensure. Therefore, candidates who have been cited for dishonesty should address this matter with the state(s) wherein they desire licensure prior to examination retesting.

The standards itemized in this section apply to all relevant portions of the examination. Failure to adhere to these standards may result in failure of the examination procedure in progress, failure of the entire examination currently being taken by the candidate (e.g., Part I, Part II, Part III, Part IV, or Part V), point deductions from the candidate's overall score on the examination currently being taken by the candidate, forfeiture of examination fees, or withholding of final examination results by CITA until the candidate complies with the examination requirements set forth in this manual.

In addition, a candidate's conduct prior to and after an examination which does not reflect the level of professionalism expected of a licensed dentist can constitute just cause for CITA providing a summary of relevant facts to a state licensure board or boards. Examples of situations where such an action might be appropriate include a candidate making inappropriate comments about classmates, instructors, school personnel or others associated with the educational or testing environment or a candidate's misrepresentation of information about why the candidate was unsuccessful in taking the examination.

2. **Use of Auxiliary Personnel**

Auxiliary personnel **ARE NOT** permitted to assist at chairside or at the simulation laboratory during the manikin-based examinations.

3. **Assigned Procedures and Teeth**

The candidate must perform only the treatment and/or procedures approved by the Examiners. Once the procedure has begun, the procedure must be carried to completion on the approved tooth/teeth with no substitutions permitted. Substituting teeth or preparing the wrong tooth/teeth during the manikin-based examinations is prohibited. Performing other treatments or procedures other than those specified in examination content are strictly prohibited.

**FAILURE TO FOLLOW THIS GUIDELINE WILL RESULT IN FAILURE OF THE EXAMINATION CURRENTLY BEING TAKEN BY THE CANDIDATE.**

4. **Use of Electronic Equipment**

The use of cellular telephones, pagers, CDs, radios (with or without earphones) and other electronic equipment by candidates is prohibited within the treatment area. **ALL CELLULAR TELEPHONES MUST BE TURNED OFF AND STORED WITH PERSONAL BELONGINGS.** In addition, the use of electronic recording devices by the candidate during any part of the examination and the taking of photographs by anyone other than personnel specifically authorized to do so by CITA, during the evaluation or treatment procedures, is prohibited. Failure to follow these guidelines will result in failure of the examination currently being taken by the candidate.

5. **Use of Innovative Technology**

New and innovative technologies are constantly being developed and marketed in dentistry. However, until such time as these innovations become the standard of care and are readily available to all candidates at all testing sites, the use of such innovative technologies, unless expressly authorized elsewhere in this manual, will not be allowed in this examination. Failure to adhere to this guideline will result in failure of the examination currently being taken by the candidate.

6. **Misappropriation, or Damage of Equipment, Instruments or Supplies**

No equipment, instruments, or supplies shall be removed from the examination site without written permission. Nonpayment of fees for rental of space or equipment will be treated as misappropriation of equipment. Violation of this standard will result in failure of the examination currently being taken by the candidate. Willful or careless damage of typodonts, manikins, or shrouds may result in failure of the manikin-based examination currently being taken by the candidate, and any repair or replacement costs must be paid by the candidate before examination results will be released.

7. **Examination Guidelines, Materials, and Records**

The published standards, guidelines, and requirements for the examination must be adhered to at all times during the conduct of the examination. Examination materials distributed by CITA may **NOT** be removed from the examining area, nor may the forms or candidate performances be reviewed by unauthorized personnel. No written materials, other than this manual, forms provided by CITA and any material obtained from the CITA website, are allowed in operatory areas. **ALL REQUIRED EXAMINATION RECORDS MUST BE SUBMITTED TO THE CHECK-OUT STATION BEFORE THE EXAMINATION IS CONSIDERED COMPLETE.**

8. **Examination Procedures and Timeframes**

All examination procedures shall be completed within the specified timeframe in order for the examination to be considered complete. Any examination procedures performed outside the assigned time schedule will be cause for dismissal from the examination. Treatment procedures may not be initiated prior to the established starting time(s) and must be completed by the established completion time(s). Violation of this standard will result in dismissal from the examination.

9. **Examination Security**

All security measures established by CITA must be followed at all times during any examination. Failure to do so will result in failure of the examination.

10. **Examination Preparation**

All candidates who take the CITA examination are responsible for reading and understanding the CITA examination manual(s), any website documented changes to the published CITA manual(s) and for reviewing and understanding all other material provided by CITA including the on-line candidate tutorial presentations. Candidates are also responsible for addressing any questions that they have regarding such material by directing those questions to the CITA office.

Failure of a candidate to review and master the guidelines provided by CITA to the point that such failure has a significant adverse impact upon that candidate's ability to efficiently and effectively take the CITA examination, will be considered unprofessional conduct. Such a gross lack of preparation and the resultant failure to follow instructions or directions is cause for dismissal and failure of the examination and, in some instances, may raise issues of the candidates' character and fitness for licensure. In those instances when such conduct is considered unprofessional, CITA reserves the right to report such conduct to the appropriate state licensure board or boards.

## **11. Examiner Instructions**

Failure to follow instructions or directions from examiners will be considered unprofessional conduct and is cause for dismissal and failure of the examination. Additionally, the candidate shall be denied re-examination by CITA for one (1) full year from the time of the infraction.

## **12. Actions Resulting in Dismissal from and/or Failure of the Examination**

In addition to standards of conduct outlined above and elsewhere in this manual the following is provided as a quick reference guide for candidates as, although not an all-inclusive list, examples of behaviors that will result in dismissal from and/or failure of the examination currently being taken by the candidate:

- Failure to follow examination guidelines, protocols, and/or exam administrative procedures, as may be published in the candidate manual or as may be provided at the examination site.
- Using unauthorized equipment at any time during the examination process.
- Working in an unassigned clinic, operatory or laboratory space.
- Altering examination records.
- Performing required examination procedures outside the allotted examination time period.
- Failure to follow the published time limits and/or complete the examination within the allotted time period.
- Receiving assistance from another practitioner, including, but not limited to, another candidate, dentist, university/dental school representative, etc.
- Failure to recognize or respond to systemic conditions that potentially jeopardize the health of the patient and/or total disregard for patient welfare, comfort, and safety, which also may include evidence of the candidate's complete lack of skill and dexterity to perform the required procedure.
- Misinformation or missing information that would endanger the patient, candidate, auxiliary personnel, or examiners.
- Unauthorized use or possession of materials, documents or forms not approved by CITA or any other form of cheating.
- Unprofessional, rude, abusive, uncooperative, or disruptive behavior toward other candidates, patients and/or examination personnel.

- Misappropriation, misrepresentation or thievery during the examination.
- Noncompliance with anonymity requirements.
- Noncompliance with established guidelines for asepsis and/or infection control.
- Use of cellular telephones, pagers, or other electronic equipment in treatment areas.
- Dismantling the manikin, typodont, or teeth without prior permission from the Clinic Floor Examiner.
- Use of electronic recording devices during any part of the examination, as well as the taking of photographs during the evaluation of treatment procedures.
- Submission of candidate photographs that differ substantially from the candidate's appearance at the examination. Stated differently, a candidate can be dismissed from the examination if his/her appearance differs so significantly from the photograph submitted with his/her application that the candidate's identification badge cannot easily be used by those administering the examination to verify candidate identity at examination stations.

## **PART III GUIDELINES**

### **1. Anonymity**

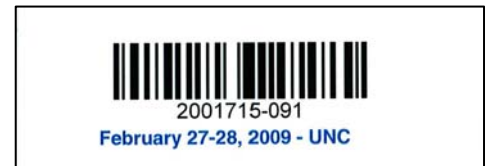
For the manikin-based (Parts II and III), the anonymous testing procedures for these examinations shall exclude the possibility that any person who is involved with the grading of any examination may know, learn of, or establish the identity of a candidate, or correlate the patient or work-product graded, or to be graded, to a particular candidate. The candidate's name and school information must not appear on any examination forms, materials, or instruments. Grading examiners will be physically isolated from the candidates in a separate area of the clinic, and the movement of candidate work product from the clinical area to the grading area shall be controlled by the use of CITA/School personnel. All examination forms and materials are identified by the candidate's identification number which is assigned prior to the examination. In addition to the efforts taken by CITA, it is also each candidate's duty to help maintain his/her anonymity. As such, candidates should be attentive to safeguarding their identity in all discussions or ancillary materials that may be in their possession.

### **2. Authorized Personnel**

Only authorized personnel will be allowed in the laboratory and/or simulation areas.

### **3. Barcode Labels**

Each candidate will receive a unique identification number which will be bar-coded and will be used during the course of the examination to identify the candidate's evaluation forms and/or other candidate materials.



### **4. Communications From and With Examiners, Examination Officials and Examination Staff**

At various times during the conduct of the CITA examination, candidates may find it necessary to communicate with examiners, examination officials and/or examination staff. All such communications must be in English.

It is imperative that all candidates understand that the demeanor they display in communications with examiners, examination officials and examination staff is to be on the level of professionalism expected of licensed professionals. Therefore, unprofessional, rude, abusive, uncooperative, or disruptive behavior toward CITA staff, examiners, examination officials or other candidates will not be tolerated and may be

cause for dismissal and failure of the examination. In addition, candidates should understand that discussions, arguments or confrontations of any nature, aside from a basis of dismissal, are often at the expense of treatment time, and may result in failure of the examination due to lack of time available.

## 5. Critical Deficiencies

For Parts II and III of the Manikin Examination, deficiencies are treatment that is, for the purposes of this examination, of unacceptable quality, demonstrating areas of incompetence in clinical judgment, knowledge or skill of the mechanical and physiological principles of restorative dentistry.

In evaluating the candidate's procedure, a deficiency must be corroborated by two (2) or more examiners marking the same deficiency on the candidate's evaluation form, i.e., a corroborated deficiency. Deficiencies have been categorized into minor and major deficiencies.

### a. Minor Deficiencies

For the Endodontic Examination, *each* confirmed minor deficiency is a **sixteen (16) point deduction** and for the Prosthodontic Examination, *each* confirmed minor deficiency is a **ten (10) point deduction**. A comprehensive list of the examination criteria can be found at the end of this manual. Minor deficiencies are highlighted in grey.

### b. Major Deficiencies

Each confirmed major deficiency in the Endodontic Examination is a **twenty-four (24) point deduction** and for the Prosthodontic Examination, each confirmed major deficiency is a **fifteen (15) point deduction**. A comprehensive list of the examination criteria can be found at the end of this manual.

## 6. Critical Errors

Critical errors are deficiencies which could lead to patient injury or may jeopardize the overall prognosis of the treatment, and such errors are given special consideration by the examiners. The following criteria are considered critical errors in the manikin-based examinations.

### Anterior Endodontic Examination

- Wrong tooth/surface treated.
- The crown or root is fractured during instrumentation or obturation.
- The crown of the tooth has been reduced.
- There is evidence of gross damage and/or alteration to either opposing or adjacent hard/soft tissues.

- There is significant evidence of damage to the facial shroud.
- There is restorative material in the pulp chamber.
- A file is separated in the root canal which prevents the obturation of the root canal system.
- A perforation is present in any portion of the tooth.
- The canal is not filled or is filled with non-approved examination material.

### **Posterior Endodontic Examination**

- Wrong tooth treated
- The crown of the tooth has been reduced
- There is evidence of gross damage and/or alteration to either opposing or adjacent hard/soft tissues.
- There is significant evidence of damage to the facial shroud.
- The root is fractured during instrumentation.
- There is restorative material in the pulp chamber
- The pulp chamber roof has not been sufficiently removed to allow proper access and/or identification of the root canal orifices.
- The crown of the tooth is fractured

### **Prosthodontic Examination**

- There is evidence of gross damage and/or alteration to opposing hard tissues.
- There is gross damage to the shroud.
- The adjacent tooth structure has sustained damage sufficient to require a restoration and/or recontouring due to changes in the shape or position of the contact.
- There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
- There is an undercut which cannot be managed to allow fabrication of an appropriate restoration.
- Wrong tooth/surface treated.

### **Fixed Partial Denture**

- The line of draw or path of insertion will not allow seating of a fixed partial denture prosthesis.

In evaluating the candidate's procedure, a critical error must be corroborated by two (2) or more examiners marking the same critical error on the candidate's evaluation form, i.e., a corroborated critical error. If a candidate has a corroborated critical error in either Part II and/or Part III, the candidate will receive a zero for the Part (s) being evaluated, even though other rated treatment criteria are acceptably completed.

7. **Equilibration**

No equilibration will be permitted on the typodont prior to or subsequent to any crown preparations.

8. **Equipment Failure**

In cases of equipment failures, the Chief Examiner or Clinic Floor Examiner must be notified immediately so the malfunction may be corrected. No additional time is granted to the candidate for any equipment failures encountered during the examination UNLESS it is equipment that is provided by the facility.

9. **Evaluation Grade Sheets and Procedures**

Evaluation forms for each procedure tested will be provided by CITA. Candidate performance will be evaluated by three (3) independent examiners, and candidates are not assigned to specific examiners. The performance criteria and the standards by which the examination is conducted are discussed throughout this manual.

10. **Identification Badges**

During the examination, candidate identification badges must be worn on the OUTSIDE of the clinic gown so they can be viewed at all times. The badge will have a candidate picture and an identification number bar-coded on the front of the badge. This badge will be provided during registration just prior to the examination.



11. **Infection Control Standards**

During all manikin-based procedures the candidate must follow all infection control procedures. These procedures must begin with the initial setting up of the unit, continue throughout the examinations, and include the final cleanup of the operatory or simulation space. The operatory and/or operating field must remain clean and sanitary in appearance.

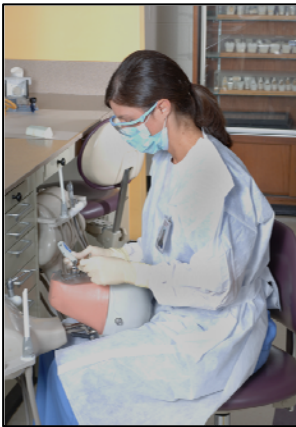
12. **Instruments and Equipment**

All necessary materials and instruments for the clinical procedures, other than the operating chair, light, and dental unit, must be provided by the candidate. All equipment must be compatible with equipment at the testing site, information about which is provided under separate cover by the testing site. Rotary instruments are permissible during the endodontic examination. Arrangements for rental handpieces and/or other equipment may be made through the testing site. Sonic/ultrasonic instruments are permissible, but they must be furnished by the candidate along with the appropriate connection mechanisms. Air-abrasive polishers are **NOT** permissible. It is the responsi-

bility of the candidate to arrange for his/her own handpiece, sonic/ultrasonic, and all other equipment necessary to complete the clinical examination. It is suggested that all candidates check well in advance with the dental school's site coordinator, concerning equipment requirements at the testing site.

- **Manikin-Based Endodontics Examination** - Each examiner will use an endodontic file, periodontal probe and an explorer to evaluate the rated treatment criteria for each procedure.
- **Manikin-Based Prosthodontics Examination** - Each examiner will use a periodontal probe, an explorer, boley gauge and stints to evaluate the rated treatment criteria for each procedure.

### 13. Patient Simulation



The correct patient/operator position must be maintained while operating. Throughout the manikin-based examination, the treatment process will be observed by Clinic Floor Examiners and evaluated as if the manikin were a live patient. With the exception of having the manikin wear protective eyewear, the manikin is subject to the same treatment standards as any patient. The facial shroud may not be displaced other than with those retraction methods which would be reasonable for a patient's facial tissue. Some modifications in the treatment procedure are imposed due to the mechanical simulation conditions. The candidate **SHOULD** at least use hand piece air spray during tooth preparation, but **MAY** use both air and water spray when preparing teeth numbers 3, 5, 8, 9, and 14. If water spray is utilized, a mechanism to collect and remove the water must be in place during the use of the water spray. Models or pre-preparations are **NOT** permitted to be brought to the examination site.

### 14. Progress Forms

During the examination, color-coded Progress Forms will be issued which will contain a record of the treatment, examiner numbers for all completed portions of the examination, and progress notes from the candidate to the examiner, as appropriate for the course of treatment. A **BLACK OR BLUE BALL-POINT PEN** should be used for all notations on the Progress Form.

The form is titled 'Manikin-Based Endodontics Progress Form' and includes a header 'Exam Must Be Completed in 1h'. It contains several sections: 'Candidate Identification' with fields for name, ID, and date; 'Examination Setup' with checkboxes for 'Endodontic Tooth Length Recorder', 'Endodontic Manikin in Place or Similar Test', and 'Tray/Instrument Approval'; 'Examiner Check-Off' with checkboxes for 'Student Evaluation of Completion of Examination Procedures', 'Permitted to Operate Tray/Instrument', and 'Submission of Endodontic Models'; and 'Examiner's Comments' with a large text area. At the bottom, there are fields for 'Final Score', 'SPEAK', and 'Complete Study Form'.

### 15. Recontouring

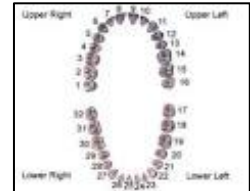
No recontouring of adjacent teeth or restorations will be permitted without prior approval of the Clinic Floor Examiner.

**16. Role of the Clinic Floor Examiner**

During the conduct of Part II and III, the Clinic Floor Examiner is responsible for checking the candidate's identification card and proctoring adherence to infection control protocols and proper patient management. If any problems arise during the examination, the candidate should immediately notify the Clinic Floor Examiner. Additionally, the Clinic Floor Examiner also is present to aid in any emergencies which may occur.

**17. Tooth Numbering System**

The tooth numbering system 1-32 will be used throughout the examination. In this system, the maxillary right third molar is number 1 and mandibular left third molar is number 17.



**18. Security Checks**

A random selection of teeth will be sectioned at the end of each examination to ascertain that the teeth prepared are the teeth distributed for the examination site. Any alteration or substitution of teeth, or modules, will result in failure of the entire manikin-based examination.

## PART IV EXAMINATION SCORING METHOD

### 1. Examiners

Candidates will be evaluated by examiners primarily from the jurisdictions which comprise CITA. These examiners may be members of the various state boards of dentistry, or they may have been selected by their board to serve as examiners. In addition, there are frequently observers at CITA examinations who may be faculty members from other schools, new CITA examiners, or examiners from other CITA member states. Such observers are authorized to participate in calibration exercises, monitor all portions of the examination, and/or evaluate patients from time-to-time; however, observers neither assign grades nor participate in the grading process.

### 2. Examination Scoring System

CITA's examination scoring system was developed in consultation with a number of measurement specialists and subject matter experts in the field of dentistry, as well as a number of publications on the licensure examination process. The scoring system is criterion-referenced, and it is based on an analytical scoring model where each set of specified criteria is evaluated by three independent graders. The examination is conjunctive, inasmuch as its content is divided into five (5) Parts containing related skill sets.

Competence must be demonstrated on each of the five (5) Parts. In addition, a compensatory scoring system is used within Parts II, III, IV and V to compute the final score for that Part. A score of seventy-five (75) or greater is required to successfully complete each Part. Each of the five (5) Parts must be successfully completed to achieve "CITA Status". Parts II, III, IV and V are based on a 100-point scale. **IF ALL SECTIONS OF AN EXAMINATION (PARTS II-V) ARE NOT TAKEN, A SCORE OF "0" WILL BE RECORDED FOR THAT EXAMINATION.**

Currently, for Part I, CITA accepts the successful completion of the National Boards Part I and II as administered by the Joint Commission. Candidates are required to provide the scores to CITA.

### 3. Part II and III Manikin-Based Examination)

For Parts II and III, the rating or points, are assigned for each criterion in every procedure by three (3) different examiners, each of whom conducts an independent evaluation.

The assigned score is the score that is confirmed by at least two (2) examiners. For each line item criteria that receives a rating of a **MINOR DEFICIENCY**, in the Endodontic Examination, **SIXTEEN (16) POINTS WILL BE DEDUCTED** and in the Prosthodontic Examination, **TEN (10) POINTS WILL BE DEDUCTED**.

**FOR A MAJOR DEFICIENCY**, in the Endodontic Examination **TWENTY-FOUR (24) POINTS WILL BE DEDUCTED** and in the Prosthodontic Examination, **FIFTEEN (15) POINTS WILL BE DEDUCTED**.

**ANY CONFIRMED CRITICAL ERROR IN EITHER THE ENDODONTIC EXAMINATION OR PROSTHODONTIC EXAMINATION WILL RESULT IN A SCORE OF ZERO FOR THAT PROCEDURE**, even though other criteria within that procedure or Part may have been rated as satisfactory.

The following table illustrates criteria ratings for procedures evaluated in Parts II and III:

<i>Endodontic Examination</i>	<i>Score</i>
No errors	<b>100</b>
1 confirmed minor deficiency	<b>84</b>
1 confirmed major deficiency error	<b>76</b>
2 confirmed minor deficiencies	<b>68</b>
1 confirmed major deficiency; 1 confirmed minor deficiency	<b>60</b>
Any confirmed critical error	<b>0</b>

<i>Prosthodontic Examination</i>	<i>Score</i>
No errors	<b>100</b>
1 confirmed minor deficiency	<b>90</b>
1 confirmed major deficiency error	<b>85</b>
2 confirmed minor deficiencies	<b>80</b>
1 confirmed major deficiency; 1 confirmed minor deficiency	<b>75</b>
Any confirmed critical error	<b>0</b>

#### **4. Infection Control**

During all manikin procedures the manikin is to be treated as if it were a live patient. Therefore, the candidate must follow all infection control regulations of the state wherein the examination is being administered and in accordance with the “*Guidelines for Infection Control in Dental Health-Care Settings—2003*” (CDC MMWR: December 19, 2003, Vol. 52, No. RR-17), as published by the Centers for Disease Control and Prevention (CDC). These procedures must begin with the initial setting up of the unit, continue throughout the

examinations, and include the final cleanup of the operatory or simulation unit area. The operatory, simulation laboratory area and/or operating field must remain clean and sanitary in appearance. Infection control will be monitored by the Clinic Floor Examiners. The only exception to standard infection control precautions is that the candidate is **NOT** required to maintain protective eyewear on the manikin and instruments should be brought to the examination sterilized for everyone's protection. The following point deductions will be applied for infection control violations:

<i><b>INFECTION CONTROL INFRACTION</b></i>	<i><b>POINT DEDUCTION</b></i>
Gross asepsis; operatory area is grossly unclean, unsanitary, or offensive in appearance	<b>100 Points</b>
Failure to dispose of potentially infectious materials and clean the operatory after individual examinations	<b>20 Points</b>
Minor violation of infection control or disease barrier technique	<b>5 Points</b>

## **5. Patient Management and Treatment**

At all times during the conduct of any examination, candidates are expected to treat manikins as though they were live patients. Therefore candidates must be mindful of issues that would involve professional ethics, patient safety, comfort, welfare or damage to hard or soft tissue if treatment were being rendered to a live patient.

Failure to follow this guideline shall result in the following point deductions from the candidate's overall examination score:

<i><b>PATIENT MANAGEMENT AND TREATMENT INFRACTION</b></i>	<i><b>POINT DEDUCTION</b></i>
Gross damage to adjacent tooth structure	<b>100 Points</b>
Treatment of teeth other than those approved or assigned by examiners	<b>100 Points</b>
Poor patient management and/or disregard for the patient's welfare or comfort	<b>20 Points</b>
Improper operator/patient/manikin position	<b>10 Points</b>
Inadequate isolation	<b>5 Points</b>

The penalties or deficiencies listed above do not imply limitations, since some procedures will be classified as unsatisfactory for other reasons, or for a **COMBINATION** of several deficiencies.

# PART V

## ADMINISTRATION FIXED-PROSTHODONTICS EXAMINATION

### 1. Examination Content and Scoring

Part III consists of three (3) procedures: (a) a porcelain-fused-to-metal crown preparation as an abutment for a bridge; (b) a cast gold metal crown preparation as an abutment for a bridge; and (c) a full ceramic crown preparation. Three (3) examiners independently evaluate all rated treatment criteria for the examination, and the competency level in each category is determined by agreement of at least two (2) examiners. These competency levels are translated by computer into a numerical score.

PART III CONTENT	
Tooth Number 5	A multi-layered artificial tooth for a porcelain-fused-to-metal crown (PFM) as one abutment for a 3-unit bridge; the bridge is not fabricated for this examination
Tooth Number 3	A multi-layered artificial tooth for a cast gold metal crown (CGC) as the other abutment for the same 3-unit bridge; both preparations must be parallel to each other
Tooth Number 9	A multi-layered artificial tooth for a full ceramic crown (FCC)

### 2. Treatment Criteria Overview

The following tables depict the aforementioned treatment criteria for each fixed-prosthodontics procedure on Part III.

PORCELAIN-FUSED-TO-METAL CROWN PREPARATION
<b>Cervical Margin</b>
Margin/Extension
Margin/Definition
Margin/Width
<b>Walls, Taper, and Draw</b>
Axial Tissue Removal
Axial Walls-Smoothness
Taper
Line of Draw
Occlusal Reduction
Line Angles
Occlusal Anatomy

<b>CAST GOLD METAL CROWN PREPARATION</b>	
<b>Cervical Margin</b>	
Margin/Extension	
Margin/Definition	
Margin/Width	
<b>Walls, Taper, and Draw</b>	
Axial Tissue Removal	
Axial Walls-Smoothness	
Taper	
Line of Draw	
Occlusal Reduction	
Line Angles	
Occlusal Anatomy	
<b>Fixed Partial Denture</b>	
Path of Insertion	
<b>FULL CERAMIC CROWN PREPARATION</b>	
<b>Cervical Margin</b>	
Margin/Extension	
Margin/Definition	
Margin/Width	
<b>Walls, Taper, and Draw</b>	
Facial Axial Tissue Removal	
Interproximal Axial Tissue Removal	
Lingual Axial Tissue Removal	
Axial Walls-Smoothness	
Taper	
Line of Draw	
Incisal Reduction	
Line Angles	
Lingual Wall Height	

### 3. Typodont



Part III must be completed on three (3) artificial bi-layer teeth (#3, # 5 and #9) which will be mounted in a Nissin/Kilgore Carrier Tray. The bi-layered teeth are Nissin teeth which simulate enamel and dentin. The carrier trays will be inserted in a Nissin/Kilgore Articulator and

mounted in a manikin with a shroud to be provided by the dental school. CITA will provide all complete carrier trays, articulators, bilayered teeth and VPS heavy bodied putty for stint fabrication.



The following items may be purchased by candidates from Kilgore International ([www.kilgoreinternational.com](http://www.kilgoreinternational.com)) to practice on prior to the examination:

#### **CITA EP KIT Complete Testing**

- CITA – CT (Carrier Trays with articulator – lower arch, upper Prosthodontic arch and upper endodontic arch)
- CITA – UP (Upper Prosthodontic carrier tray comes complete with Nissin A20-200 #3 bi-layer tooth, Nissin A20-200 #5 bi-layer tooth, Nissin A20-200 #9 bi-layer tooth and #4 Nissin root plug)
- CITA – LP (Lower arch carrier tray comes with a full complement of teeth)
- CITA – UE (Upper Endodontic carrier tray comes complete with #8 Acadental endodontic tooth and #14 Acadental endodontic tooth with Nissin insert)

#### **CITA RE KIT (Endo Refurbishing Kit):**

- 2 each CITA AD8 - #8 Acadental endodontic tooth
- 2 each CITA AD14 - #14 Acadental endodontic tooth with Nissin insert

#### **CITA RK-1 KIT (Prosthodontic Refurbishing Kit)**

- 4 each A20-200 - #3 Nissin bi-layered tooth
- 4 each A20-200 - #5 Nissin bi-layered tooth
- 4 each A20-200 - #9 Nissin bi-layered tooth
- 1 each A2A-240 - #4 Nissin root plug



#### **4. Preparation of Teeth**

The preparation for a cast gold metal crown is completed on tooth number 3; the preparation for a porcelain-fused-to-metal (PFM) crown is completed on tooth number 5; and the preparation for the full ceramic crown is completed on tooth number 9. The teeth must be prepared for full crowns with supragingival margins according to published criteria. The assigned teeth are multi-layered teeth having simulated enamel and dentin. No rubber dam is required for the crown preparations.

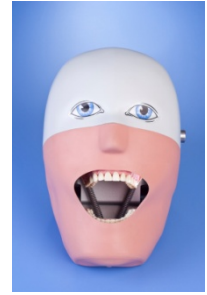
These modules will be distributed to the candidate in a box before Part III begins. No typodonts are to be mounted in the manikin shrouds without the prior approval of the Clinic Floor Examiner.

#### **5. Stint Fabrication**

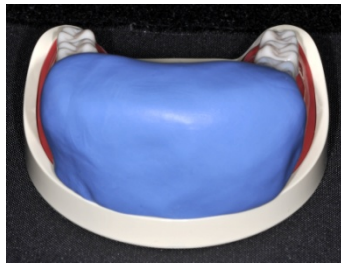
All candidates for the Prosthodontic portion of the examination will be required to make an anterior and posterior segment stint at the beginning of the set-up period utilizing a VPS heavy bodied putty. These stints may be used by the candidate during the examination to aid in making determinations regarding the proper preparation of the teeth in question.

## ANTERIOR STINT FABRICATION

The Anterior stint is fabricated over the teeth to be prepared for the Ceramic Crown Preparation. The stint will be fabricated after the typodont is mounted and the mounting has been approved by the Clinic Floor Examiner. The Clinic Floor Examiner shall enter their examiner number on the candidate's Progress Form to denote that the mounting of the typodont head has been approved. The typodont and/or articulator must not be removed from the manikin head once the mounting has been approved. For presentational purposes, pictures in this document may be shown with the carrier trays unmounted.

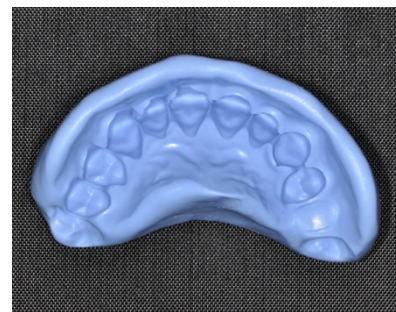


The first stint which shall be fabricated will be the anterior sextant stint. Most VPS putty systems are mixed in a 1:1 ratio until all streaks are eliminated from the mix. Working times will vary by manufacturer. The candidate should work quickly so that sufficient time is allowed for proper adaptation of the mixed putty to the teeth and tissues.



It is required that the candidate mix sufficient material to cover the anterior sextant from at least canine to canine. The facial aspect of the sextant should be covered down to the level of the carrier tray rim for stability. When the candidate is making the stint, the thickness of the material should give the finished stint body and rigidity. It is required that the putty extend at least three quarters of the way down the lingual surface.

Once the putty has hardened it may be removed from the typodont. The candidate should visually inspect the inside of the stint to validate that an accurate representation of the anatomic aspects of the teeth and gingival tissues have been registered. It is not required that a perfect registration be obtained in all areas, but the impression should be accurate around the anterior tooth which will be prepared for the ceramic crown during the simulation clinic. While voids are not typically an issue, they must be avoided in areas which approximate the tooth surfaces. The candidate should check the stint fabrication for any voids, and if significant voids are present at the tooth interfaces, the stint must be re-fabricated.

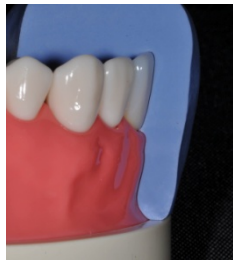


If the candidate has concern regarding the fabrication of the stint, the candidate may obtain another mix of putty after a clinic floor examiner has validated the need for the stint to be re-fabricated.



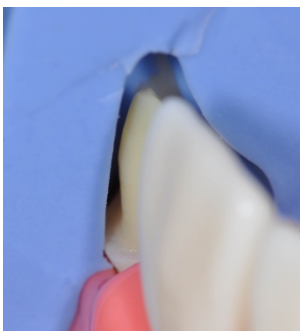
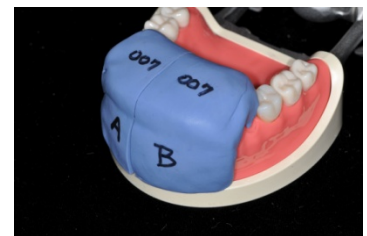
The stint will be sectioned through the midpoint of the anterior tooth which will be prepared. Tradition lab knives should be used to section the stint. sectioned through the mid-point of the anterior tooth which will be prepared. A steady hand and keen eye can be a great source of comfort as the operation proceeds. Making one clean continuous cut will deliver a more refined and useful end product. If needed, the candidate may mark the stint with an indelible pencil, before making the cut, to validate the positions of the sectioning cut.

The resultant halves are easily separated after being cut. Should the candidate section the stint inappropriately, a new stint may be fabricated after having a clinic floor examiner validate the need for stint re-fabrication. Again, making one clean continuous cut will deliver a more refined and useful end product.



It is recommended that the candidate place the stint on the typodont and verify that the fit and adaptation are appropriate for the intended use of the stint. While a well made stint may offer some minor resistance to being seated, the stint should fit without needing to have undue force placed upon it for it to be seated. The candidate should pay close attention to the adaptation of the tissue areas, as well as those areas which have captured tooth morphology.

The occlusal aspect of the stint should have the candidate number placed on both halves of the stint. The facial aspect of the stint should be labeled as noted in the picture using Letters "A" and "B" to denote the two sections. When the candidate has finished fabricating the anterior stint the candidate should immediately begin fabrication of the posterior stint.



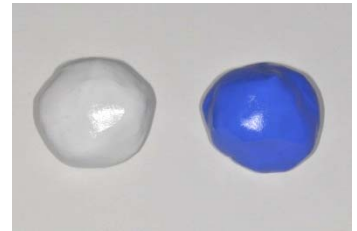
The candidate should engage the stint during preparation of the ceramic crown as an adjunctive tool to determine if the preparation is proceeding according to the criteria of the examination. Periodic validation of the preparation may be extremely useful to the candidate. Examiners will use the candidate's stint as an adjunctive tool to assess elements of the candidate's performance.

## POSTERIOR STINT FABRICATION

The Posterior stint is fabricated over the teeth to be prepared for the PFM and Cast Gold preparations. The stint will be fabricated after the typodont is mounted and the mounting has been approved by the Clinic Floor Examiner. The Clinic Floor Examiner shall enter their examiner number on the candidate's Progress Form to denote that the mounting of the typodont head has been approved. The typodont and/or articulator must not be removed from the manikin head once the mounting has been approved.



The second stint which shall be fabricated will be the posterior stint. Most VPS putty systems are mixed in a 1:1 ratio until all streaks are eliminated from the mix. Working times will vary by manufacturer. The candidate should work quickly so that sufficient time is allowed for proper adaptation of the mixed putty to the teeth and tissues.



The posterior segment is registered employing the same technique as the anterior segment. The putty material will cover from the mesial of tooth number 7 to at least 3.0 mm distal to the distal aspect of tooth number 2.

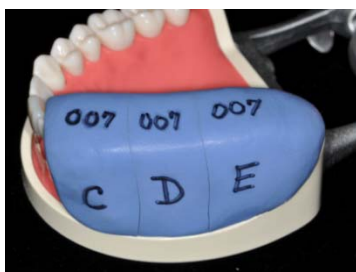


The putty material should be brought down to the level of the carrier tray. The putty should be applied so that it covers at least one half to three quarters of the lingual surface of the tissue areas of the module.



The sectioning of the posterior stint will be accomplished by effecting two sectioning cuts, one mid-across the premolar abutment and the other mid-across the molar abutment. This results in three sections, A, B and C.

The posterior stint should be labeled using a permanent marker with a medium point. The stint must be labeled on the occlusal aspect with the candidate's assigned examination number. The facial aspect of the stint must be labeled to aid in the placement of the three segments onto their proper positions.

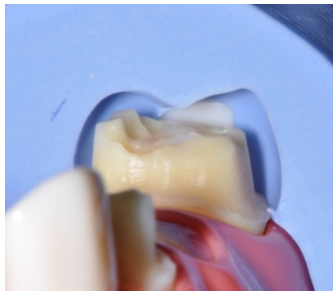


This illustrated the proper methodology for labeling the posterior stint utilized during the prosthodontic portion of the examination. The candidate should label these so that they are legible and clearly visible to the candidate and the examiners.



The candidate should place the three segments onto the typodont and observe the fit of the segments. This illustration confirms that the posterior section “E” closely adapts to the tissue surfaces from the level of the gingival cuff to the height of the carrier tray rim. Each of the three segments should be evaluated to determine proper fit and adaptation to the model. The candidate may re-fabricate the stint after an examiner has reviewed the stint and approved its re-fabrication.

The three stint segments can be employed in the assessment of the reduction of the premolar and molar abutment in the occlusal as well as the facial and lingual axial wall dimensions. Placement of section “D” gives the candidate the opportunity to assess the reduction of the distal aspects of tooth number 5 and the mesial aspects of tooth number 3. The candidate should validate that all three sections are adapted to the posterior segment where the two preparations will take place.



The candidate should engage the stint during preparation of the porcelain fused to metal and cast gold crowns as an adjunctive tool to determine if the preparation is proceeding according to the criteria of the examination. Examiners will use the candidate’s stint as an adjunctive tool to assess elements of the candidate’s performance, specifically occlusal reduction, and axial wall reduction of the preparation.

The candidate should utilize an instrument with measuring capability in the assessment of the amount of reduction that has been effected to the tooth. This illustration demonstrates a periodontal probe being employed to assist in the evaluation of facial axial wall reduction.



At the conclusion of the examination, candidates will be required to turn in with their examination materials and typodont, all stints fabricated in the examination.

**Failure to turn in all stints will be considered a breach of examination protocol.**

6. **Mounting the Typodont or Manikin**

Once the fixed prosthodontics modules have been placed in the typodont carrier trays in proper occlusion, the Clinic Floor Examiner must be summoned to indicate his/her approval on the Progress Form. Afterwards, when the typodont is mounted in the manikin, the Clinic Floor Examiner must check the mounting, occlusion, and identification numbers and verify the candidate's readiness by indicating same on the Progress Form. Each module is number-coded to indicate correct placement in the carrier trays.

**THE CANDIDATE MUST NOT BEGIN THE FIXED PROSTHODONTICS EXAMINATION WITHOUT HAVING RECEIVED AUTHORIZATION FROM A CLINIC FLOOR EXAMINER.**

**THE CANDIDATE MUST NOT BEGIN THE PREPARATION OF THE TEETH UNTIL THE CHIEF HAS OFFICIALLY STARTED THE CLINIC AND AN ANNOUNCEMENT TO THAT EFFECT HAS BEEN MADE.**

7. **Dismantling the Typodont or Manikin**

During the fixed prosthodontics examination, **THE CANDIDATE MAY NOT DISASSEMBLE THE TYPDONT OR MANIKIN WITHOUT PRIOR PERMISSION FROM THE CLINIC FLOOR EXAMINER.** Removal of the manikin, typodont, or teeth during the examination without permission of the Clinic Floor Examiner will result in failure of Part III.

8. **Examination Completion and Evaluation**

As soon as the fixed prosthodontics examination is complete, the candidate must contact a Clinic Floor Examiner and request permission to dismantle the typodont from the mounting head. The candidate must remove the typodont from the shroud and head. The Clinic Floor Examiner will turn in to the Check-Out Station the prosthodontic carrier tray. The teeth will be maintained by CITA as part of the candidate's examination record.

9. **Check-Out Procedures**

When candidates are ready to depart from the examination setting, they must go to the candidate check-out station to obtain a clearance check indicating that all forms and procedures have been accounted for and are completed.

<b>PAR VI</b> <b>ADMINISTRATION ENDODONTICS EXAMINATION</b>
--

**1. Examination Content and Scoring**

Part II consists of two (2) procedures: (a) an access opening only on a posterior tooth; and (b) an access opening, canal instrumentation, and obturation on an anterior tooth. Three (3) examiners independently evaluate all rated treatment criteria for the examination, and the competency level in each category is determined by agreement of at least two (2) examiners. These competency levels are translated by computer into a numerical score.

PART II CONTENT	
Tooth Number 14	Endodontic access opening only on a multi-rooted artificial tooth
Tooth Number 8	Endodontic access, canal instrumentation, and obturation on a single-canal artificial tooth

**2. Treatment Criteria Overview**

The following table depicts the aforementioned treatment criteria for each endodontic procedure on Part II.

PART II TREATMENT CRITERIA POSTERIOR ENDODONTIC TOOTH	
Access Opening	
Location	
Size	
Chamber De-Roofed	
Internal Form	

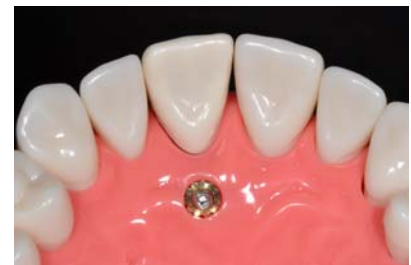
PART II TREATMENT CRITERIA ANTERIOR ENDODONTIC TOOTH	
Access Opening	
Location	
Size	
Internal Form	
Canal Instrumentation	
Cervical Portion and Mid-Root	
Apical Portion	
Canal Obturation	
Overfill/Underfill	
Voids in Filling Material	
Relationship to CEJ	

### 3. Typodont

Endodontic treatment must be completed on two (2) artificial Acidental endodontic teeth (#8 and #14). The endodontic teeth will be secured in a carrier tray and mounted in a manikin with a shroud typically provided by the dental school.



Candidates should confirm availability of shrouds at their testing site. CITA will provide all complete carrier trays, articulators, and endodontic teeth. Candidates may order the endodontic teeth from Acidental ([www.acidental.com](http://www.acidental.com)) to practice upon prior to the examination.



Candidates may order the endodontic teeth from Acidental ([www.acidental.com](http://www.acidental.com)) to practice upon prior to the examination.

Please note that if tooth #14 is ordered from Acidental, it will not contain the Nissin insert which is required to secure the tooth in the socket of the carrier teeth. When ordering teeth from Acidental you will need to order RT-AE401\_08RL (Tooth #8) and RT\_AE401\_14RL (Tooth #14). The contact email address is [www.acidental.com](http://www.acidental.com)

### 4. Preparation of Teeth

Endodontic tooth number 8 must be used to complete the access opening, canal instrumentation, and obturation portion of the anterior endodontic examination. The size, shape, and extent of the prepared access opening should reflect such anatomy and will be graded accordingly. Endodontic tooth number 14 must be used to complete an access opening to the canals of the posterior endodontic portion of the examination. At the beginning of the examination, the Clinic Floor Examiner will remove tooth number 8 from the carrier tray and the candidate must measure the tooth and record the length on the Progress Form before proceeding with obtaining approval to mount the typodont in the manikin shroud. No typodonts are to be mounted in the manikin shrouds without the prior approval of the Clinic Floor Examiner.

5. **Mounting the Typodont or Manikin**

When the typodont is mounted in the manikin, the Clinic Floor Examiner must check the mounting, occlusion, and identification numbers and authorize the candidate to begin by indicating same on the Progress Form. **THE CANDIDATE MUST NOT BEGIN WITHOUT HAVING RECEIVED AUTHORIZATION FROM A CLINIC FLOOR EXAMINER.**

6. **Dismantling the Typodont or Manikin**

During the endodontic examination, **THE CANDIDATE MAY NOT DISASSEMBLE THE TYPODONT OR MANIKIN WITHOUT PRIOR PERMISSION FROM THE CLINIC FLOOR EXAMINER.** Removal of the manikin, typodont, or teeth during the examination without permission of the Clinic Floor Examiner will result in failure of Part II.

7. **Rubber Dam Isolation**

Each endodontic procedure must be performed with a rubber dam in place. In order to avoid avulsion, **NO CLAMPS SHOULD BE PLACED ON THE TEETH TO BE TREATED;** clamps should be placed on nearby artificial teeth. Dams for anterior and posterior teeth must be placed in a separate sequence, and all work must be done with a rubber dam in place. The dams must be removed at the completion of the procedures.

8. **Endodontic Treatment**

For the anterior tooth, any form of gutta percha filling technique may be used, including any warm gutta percha or carrier-based, (except the use of metal carriers) thermoplasticized gutta percha techniques. If carrier-based gutta percha is utilized, the candidate must indicate it on the Progress Form. Please note that metal carriers may not be used for this examination. Instrumentation technique, either mechanical or manual, is at the candidate's discretion. For the posterior tooth, access opening to all canals must be completed. If a fracture occurs in either of the teeth during treatment, the procedure should be completed. If a crown fractures during treatment, the candidate should place the fractured pieces in the reclosable plastic bag and submit them with the endodontic carrier tray. No occlusal reduction of clinical crowns may be performed, other than the normal access preparation. Any other alteration will result in a deduction of points, or failure of the examination.

9. **Reference Point**

The cemento-enamel junction (CEJ) on the facial surface should be used as the reference point to determine the fill depth.

**10. Temporary Material**

No temporary material may be placed over the obturation material.

**11. Examination Completion and Evaluation**

As soon as the endodontic examination is complete, the candidate must contact a Clinic Floor Examiner and request permission to dismantle the typodont from the mounting head. The Clinic Floor Examiner will submit the endodontic carrier tray, to the Check-Out Station. The endodontic modules for teeth numbers 8 and 14 will be maintained by CITA as part of the candidate's examination record.

## VII EXAMINATION GRADING CRITERIA

### ANTERIOR ENDODONTIC PROCEDURE TOOTH #8

#### ACCESS OPENING LOCATION

**Satisfactory:**

The access opening is properly located over the pulp chamber to allow for its complete debridement.

**Unsatisfactory:**

The location of the access is misplaced and/or infringes on the incisal edge or the cingulum or marginal ridge.

#### ACCESS OPENING SIZE

**Satisfactory:**

The size of the access opening is appropriate or either slightly larger or smaller than ideal but still allows for complete access to the pulp chamber and does not weaken remaining tooth structure; nor does it infringe upon the incisal edge.

**Unsatisfactory:**

- a) The access opening is under-extended which does not allow adequate access to the canal orifice and/or debridement of the pulp chamber and root canal system.
- b) The access opening is grossly over-extended and/or involves the marginal ridge(s), cingulum and/or the incisal edge.

**ANTERIOR ENDODONTIC PROCEDURE  
TOOTH #8**

**ACCESS OPENING  
INTERNAL FORM**

**Satisfactory:**

The internal form is adequately prepared to allow complete debridement of the pulp horns and chamber and tapers smoothly to the canal orifice.

**Unsatisfactory:**

- a) The internal form is grossly under-extended that does not allow for complete debridement of the root canal system, including the pulp chamber and pulp horns.
- b) Excessive ledging and/or gouges are present.

**CANAL INSTRUMENTATION  
CERVICAL PORTION AND MID-ROOT**

**Satisfactory:**

The cervical and mid-root portions of the canal are smooth and adequately enlarged to clean the canal and allow for proper obturation.

**Unsatisfactory:**

- a) The cervical and/or mid-root portion is grossly under-prepared.
- b) The cervical and/or mid-root portion is grossly over-prepared and/or significant ledges are present.

**ANTERIOR ENDODONTIC PROCEDURE  
TOOTH #8**

**CANAL INSTRUMENTATION  
APICAL PORTION**

**Satisfactory:**

The apical portion of the canal is not transported and is without perforation

**Unsatisfactory:**

- a) If transported, the apical portion blends with and exits at the anatomical apex.
- b) The apical portion of the canal is transported and does not blend with the anatomical apex.

**CANAL OBTURATION  
OVERFILL/UNDERFILL**

**Satisfactory:**

The root canal is obturated with examination approved material no more than 2.0 mm short of the apical foramen or no more than 1.0 mm beyond the apical foramen.

**Unsatisfactory:**

- a) The obturation, using examination approved material, is more than 2.0 mm short of the apical foramen.
- b) The obturation, using examination approved material, extrudes more than 1.0 mm beyond the apical foramen.

**ANTERIOR ENDODONTIC PROCEDURE  
TOOTH #8**

**CANAL OBTURATION  
VOIDS IN FILLING MATERIAL**

**Satisfactory:**

There are no voids in the examination approved filling material from the CEJ to the apical foramen; or there are slight voids which would not affect the success of the treatment.

**Unsatisfactory:**

There are significant voids in the exam approved filling material between the CEJ and the apical foramen which would affect the success of the treatment.

**CANAL OBTURATION  
RELATIONSHIP TO CEJ**

**Satisfactory:**

The examination approved filling material is removed to the level of the facial CEJ.

**Unsatisfactory:**

- a) Filling material is present more than 2.0 mm incisal to the facial CEJ.
- b) Filling material has been removed more than 2.0 mm apical to the facial CEJ.

**ANTERIOR ENDODONTIC PROCEDURE  
TOOTH #8**

**Critical Errors**

- 0 Wrong tooth/surface treated.
- 0 The crown or root is fractured during instrumentation or obturation.
- 0 The crown of the tooth has been reduced.
- 0 There is evidence of gross damage and/or alteration to either opposing or adjacent hard/soft tissues.
- 0 There is significant evidence of damage to the facial shroud.
- 0 There is restorative material in the pulp chamber.
- 0 A file is separated in the root canal which prevents the obturation of the root canal system.
- 0 A perforation is present in any portion of the tooth.
- 0 The canal is not filled or is filled with non-approved examination material.

**POSTERIOR ENDODONTIC PROCEDURE  
TOOTH #14**

**ACCESS OPENING  
LOCATION**

**Satisfactory:**

The placement of the access opening reflects the position of the pulp chamber and allows for complete debridement of the pulp chamber and straight-line access to the root canal system.

**Unsatisfactory:**

The location of the access opening is not over the pulp chamber to the extent that it does not allow complete debridement of the pulp chamber or straight-line access to the root canal system.

**ACCESS OPENING  
SIZE**

**Satisfactory:**

The access opening is of sufficient size which allows for complete debridement of the pulp chamber.

**Unsatisfactory:**

- a) The access opening is under-extended so that straight-line access to canal orifices and/or complete debridement of the pulp chamber is not possible.
- b) The access opening is over-extended and involves and/or undermines the mesial marginal ridge; and/or the oblique ridge; and/or any cusp.

**POSTERIOR ENDODONTIC PROCEDURE  
TOOTH #14**

**ACCESS OPENING  
CHAMBER DE-ROOFED**

**Satisfactory:**

The pulp chamber and pulp horns have been identified and the chamber roof and all pulpal contents have been removed.

**Unsatisfactory:**

The chamber is not completely de-roofed; and/or the pulp chamber contents are not completely removed; and/or the pulp horns are not entered.

**ACCESS OPENING  
INTERNAL FORM**

**Satisfactory:**

The internal form tapers smoothly from the pulp horns to the canal openings.

**Unsatisfactory:**

Excessive gouging or ledging is present.

**POSTERIOR ENDODONTIC PROCEDURE  
TOOTH #14**

**Critical Errors**

- 0 Wrong tooth/surface treated.
- 0 The crown of the tooth has been reduced.
- 0 There is evidence of gross damage and/or alteration to either opposing or adjacent hard/soft tissues.
- 0 There is significant evidence of damage to the facial shroud.
- 0 The root is fractured during instrumentation.
- 0 There is restorative material in the pulp chamber.
- 0 There is a perforation present.
- 0 The pulp chamber roof has not been sufficiently removed to allow proper access and/or identification of the root canal orifices.
- 0 The crown of the tooth is fractured

**CAST GOLD CROWN PREPARATION  
TOOTH #3**

**CERVICAL MARGIN  
MARGIN/EXTENSION**

**Satisfactory**

The cervical margin is ideally at the height of the crest of the simulated free gingival margin.

**Unsatisfactory**

- a) The cervical margin is under-extended more than 1.0 mm above the simulated free gingival margin.
- b) The cervical margin is over-extended more than .5mm below the simulated free gingival margin and/or there is visual damage to the typodont simulated tissue.

**“a” and “b” can be grades**

**CERVICAL MARGIN  
MARGIN/DEFINITION**

**Satisfactory**

The cervical margin is continuous, smooth and well-defined; or continuous but slightly rough and may lack some definition.

**Unsatisfactory**

- a) The cervical margin has no continuity and/or is poorly defined.
- b) The cervical margin is cupped leaving unsupported tooth structure at the marginal interface.

**“a” and “b” can be grades**

**CAST GOLD CROWN PREPARATION  
TOOTH #3**

**CERVICAL MARGIN  
MARGIN/WIDTH**

**Satisfactory**

The cervical margin width (chamfer) is ideally 1.0 mm.

**Unsatisfactory**

- a) The cervical margin width is less than 0.5 mm.
- b) The cervical margin width is greater than 1.5 mm.

**“a” and “b” can be grades**

**WALLS, TAPER AND DRAW  
AXIAL TISSUE REMOVAL**

**Satisfactory**

The axial tissue removal as measured from the height of contour is ideally 1.5 mm.

**Unsatisfactory**

- a) The axial tissue removal is less than 1.0 mm (resulting restoration would be over contoured).
- b) The axial tissue removal is greater than 2.0 mm. (excessive removal of tooth structure).

**“a” and “b” can be grades**

**CAST GOLD CROWN PREPARATION  
TOOTH #3**

**WALLS, TAPER AND DRAW  
AXIAL WALLS-SMOOTHNESS**

**Satisfactory**

The walls are either smooth and well-defined, or are slightly rough and lack some definition.

**Unsatisfactory**

The axial walls are significantly rough.

**WALLS, TAPER AND DRAW  
TAPER**

**Satisfactory**

Preparation exhibits adequate taper for fabrication of the restoration but does not exceed 20 degrees.

**Unsatisfactory**

Taper is greater than 20 degrees.

**CAST GOLD CROWN PREPARATION  
TOOTH #3**

**WALLS, TAPER AND DRAW  
LINE OF DRAW**

**Satisfactory**

The path of insertion/line of draw, mesio-distally or facio-lingually, deviates less than 20 degrees from parallel to the long axis of the tooth.

**Unsatisfactory**

The path of insertion/line of draw is unacceptable, deviating 20 degrees or more from the long axis of the tooth.

**WALLS, TAPER AND DRAW  
OCCLUSAL REDUCTION**

**Satisfactory**

Occlusal reduction as measured with the prefabricated stint is ideally 1.5 mm.

**Unsatisfactory**

- a) Occlusal reduction as measured with the prefabricated stint is less than 1.0 mm.
- b) Occlusal reduction as measured with the prefabricated stint is greater than 2.0 mm.

**WALLS, TAPER AND DRAW  
LINE ANGLES**

**Satisfactory**

The line angles and cusp tips are rounded sufficiently to allow for fabrication and complete seating of a restoration.

**Unsatisfactory**

The line angles are excessively sharp with no evidence of rounding.

**CAST GOLD CROWN PREPARATION  
TOOTH #3**

**WALLS, TAPER AND DRAW  
OCCLUSAL ANATOMY**

**Satisfactory**

The general occlusal anatomy is maintained

**Unsatisfactory**

The occlusal anatomy lacks any relationship to anatomical form; or has been eliminated by inappropriate preparation.

**Critical Errors**

- 0 There is evidence of gross damage and/or alteration to opposing hard tissues.
- 0 There is gross damage to the shroud.
- 0 The adjacent tooth structure has sustained damage sufficient to require a restoration and/or recontouring due to changes in the shape or position of the contact.
- 0 There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
- 0 There is an undercut which cannot be managed to allow fabrication of an appropriate restoration.
- 0 Wrong tooth/surface treated.

**FIXED PARTIAL DENTURE  
PATH OF INSERTION  
TOOTH #3 and #5**

**Satisfactory**

There is a line of draw or path of insertion that would allow for the full seating of a fixed partial denture prosthesis.

**Critical Error**

- 0** The line of draw or path of insertion will not allow seating of a fixed partial denture prosthesis.

**CERAMIC CROWN PREPARATION  
TOOTH #9**

**CERVICAL MARGIN  
MARGIN/EXTENSION**

**Satisfactory**

The cervical margin is ideally at the height of the crest of the simulated free gingival margin.

**Unsatisfactory**

- a) The cervical margin is under-extended more than 1.0 mm above the simulated free gingival margin.
- b) The cervical margin is over-extended more than 0.5mm below the simulated free gingival margin and/or there is visual damage to the typodont simulated tissue.

**“a” and “b” can be grades**

**CERVICAL MARGIN  
MARGIN/DEFINITION**

**Satisfactory**

The cervical margin is continuous, smooth and well-defined; or continuous but slightly rough and may lack some definition.

**Unsatisfactory**

- a) The cervical margin has no continuity; and/or is poorly defined.
- b) The cervical margin is cupped leaving unsupported tooth structure at the marginal interface.

**“a” and “b” can be grades**

**CERAMIC CROWN PREPARATION  
TOOTH #9**

**CERVICAL MARGIN  
MARGIN/WIDTH**

**Satisfactory**

The cervical margin width (chamfer or shoulder) is ideally 1.0 mm.

**Unsatisfactory**

- a) The cervical margin width is less than 0.5 mm.
- b) The cervical margin width is greater than 1.5 mm.

**“a” and “b” can be grades**

**WALLS, TAPER AND DRAW  
FACIAL AXIAL TISSUE REMOVAL**

**Satisfactory**

The facial axial tissue removal as measured from the height of contour is ideally 2.0 mm.

**Unsatisfactory**

- a) The facial axial tissue removal is less than 1.5 mm (resulting restoration would be over contoured).
- b) The facial axial tissue removal is greater than 2.5 mm (excessive removal of tooth structure).

**CERAMIC CROWN PREPARATION  
TOOTH #9**

**WALLS, TAPER AND DRAW  
INTERPROXIMAL AXIAL TISSUE REMOVAL**

**Satisfactory**

The interproximal axial tissue removal as measured from the height of contour of the adjacent tooth is ideally 2.0 mm.

**Unsatisfactory**

- a) The interproximal axial tissue removal is less than 1.5 mm (resulting restoration would be over contoured).
- b) The interproximal axial tissue removal is greater than 2.5 mm (excessive removal of tooth structure).

**WALLS, TAPER AND DRAW  
LINGUAL AXIAL TISSUE REMOVAL**

**Satisfactory**

The lingual axial tissue removal as measured from the height of contour is ideally 1.5 mm.

**Unsatisfactory**

- a) The lingual axial tissue removal is less than 1.0 mm (resulting restoration would be over contoured).
- b) The lingual axial tissue removal is greater than 2.0 mm (excessive removal of tooth structure).

**CERAMIC CROWN PREPARATION  
TOOTH #9**

**WALLS, TAPER AND DRAW  
AXIAL WALLS-SMOOTHNESS**

**Satisfactory**

The axial walls are smooth and well-defined, or are slightly rough and lack some definition

**Unsatisfactory**

The axial walls are significantly rough.

**WALLS, TAPER AND DRAW  
TAPER**

**Satisfactory**

Preparation exhibits adequate taper for fabrication of the restoration but does not exceed 20 degrees.

**Unsatisfactory**

Taper is greater than 20 degrees.

**WALLS, TAPER AND DRAW  
LINE OF DRAW**

**Satisfactory**

The path of insertion/line of draw, both mesio-distally and facio-lingually, deviates less than 20 degrees from parallel to the long axis of the tooth.

**Unsatisfactory**

The path of insertion/line of draw is unacceptable, deviating 20 degrees or more from the long axis of the tooth.

**CERAMIC CROWN PREPARATION  
TOOTH #9**

**WALLS, TAPER AND DRAW  
INCISAL REDUCTION**

**Satisfactory**

The incisal reduction is ideally 2.0 mm as measured from the prefabricated stint.

**Unsatisfactory**

- a) The incisal reduction is less than 1.5 mm as measured from the prefabricated stint.
- b) The incisal reduction is greater than 2.5 mm, as measured from the prefabricated stint.

**WALLS, TAPER AND DRAW  
LINE ANGLES**

**Satisfactory**

The line angles and incisal edge are rounded sufficiently to allow for fabrication and complete seating of a restoration.

**Unsatisfactory**

The line angles are excessively sharp with no evidence of rounding.

**WALLS, TAPER AND DRAW  
LINGUAL WALL HEIGHT**

**Satisfactory**

The lingual wall height is at least 1.0 mm or greater.

**Unsatisfactory**

The lingual wall height is less than 1.0 mm.

**CERAMIC CROWN PREPARATION  
TOOTH #9**

**Critical Errors**

- 0 Wrong tooth/surface treated.
- 0 There is evidence of gross damage and/or alteration to opposing hard tissues.
- 0 There is gross damage to the shroud.
- 0 The adjacent tooth structure has sustained damage sufficient to require a restoration and/or recontouring due to changes in the shape or position of the contact.
- 0 There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
- 0 There is an undercut which cannot be managed to allow fabrication of an appropriate restoration.

## **PORCELAIN-FUSED-TO METAL CROWN PREPARATION TOOTH #5**

### **CERVICAL MARGIN MARGIN/EXTENSION**

#### **Satisfactory**

The cervical margin is ideally at the height of the crest of the simulated free gingival margin.

#### **Unsatisfactory**

- a) The cervical margin is under-extended more than 1.0 mm above the simulated free gingival margin.
- b) The cervical margin is over-extended more than 0.5mm below the simulated free gingival margin and/or there is visual damage to the typodont simulated tissue.

**“a” and “b” can be grades**

### **CERVICAL MARGIN MARGIN/DEFINITION**

#### **Satisfactory**

The cervical margin is either continuous, smooth and well-defined; or continuous but slightly rough and may lack some definition.

#### **Unsatisfactory**

- a) The cervical margin has no continuity; and/or is poorly defined.
- b) The cervical margin is cupped leaving unsupported tooth structure at the marginal interface.

**“a” and “b” can be grades**

## **PORCELAIN-FUSED-TO METAL CROWN PREPARATION TOOTH #5**

### **CERVICAL MARGIN MARGIN/WIDTH**

#### **Satisfactory**

The cervical margin width (chamfer) is ideally 1.0 mm.

#### **Unsatisfactory**

- a) The cervical margin width is less than 0.5 mm.
- b) The cervical margin width is greater than 1.5 mm.

**“a” and “b” can be grades**

### **WALLS, TAPER AND DRAW AXIAL TISSUE REMOVAL**

#### **Satisfactory**

The axial tissue removal, as measured from the height of contour is ideally 1.5 mm.

#### **Unsatisfactory**

- a) The axial tissue removal is less than 1.0 mm (resulting restoration would be over contoured).
- b) The axial tissue removal is greater than 2.0 mm (excessive removal of tooth structure).

**“a” and “b” can be grades**

## **PORCELAIN-FUSED-TO METAL CROWN PREPARATION TOOTH #5**

### **WALLS, TAPER AND DRAW AXIAL WALLS-SMOOTHNESS**

#### **Satisfactory**

The axial walls are smooth and well-defined, or are slightly rough and lack some definition

#### **Unsatisfactory**

The axial walls are significantly rough.

### **WALLS, TAPER AND DRAW TAPER**

#### **Satisfactory**

Preparation exhibits adequate taper for fabrication of the restoration does not exceed 20 degrees.

#### **Unsatisfactory**

Taper is greater than 20 degrees.

### **WALLS, TAPER AND DRAW LINE OF DRAW**

#### **Satisfactory**

The path of insertion/line of draw, mesio-distally or facio-lingually, deviates less than 20 degrees from parallel to the long axis of the tooth.

#### **Unsatisfactory**

The path of insertion/line of draw deviates more than 20 degrees from the long axis of the tooth.

## **PORCELAIN-FUSED-TO METAL CROWN PREPARATION TOOTH #5**

### **WALLS, TAPER AND DRAW OCCLUSAL REDUCTION**

#### **Satisfactory**

Occlusal reduction as measured with the prefabricated stint is ideally 2.0 mm.

#### **Unsatisfactory**

- a) Occlusal reduction as measured with the prefabricated stint is less than 1.0 mm.
- b) Occlusal reduction as measured with the prefabricated stint is greater than 2.5 mm.

### **WALLS, TAPER AND DRAW LINE ANGLES**

#### **Satisfactory**

The line angles and cusp tips are rounded sufficiently to allow for fabrication and complete seating of a restoration.

#### **Unsatisfactory**

The line angles are excessively sharp with no evidence of rounding.

### **WALLS, TAPER AND DRAW OCCLUSAL ANATOMY**

#### **Satisfactory**

The general occlusal anatomy is maintained.

#### **Unsatisfactory**

The occlusal anatomy lacks any relationship to anatomical form; or has been eliminated by inappropriate preparation.

## **PORCELAIN-FUSED-TO METAL CROWN PREPARATION TOOTH #5**

### **Critical Errors**

- 0 Wrong tooth/surface treated.
- 0 There is evidence of gross damage and/or alteration to opposing hard tissues.
- 0 There is gross damage to the shroud.
- 0 The adjacent tooth structure has sustained damage sufficient to require a restoration and/or recontouring due to changes in the shape or position of the contact.
- 0 There is gross iatrogenic damage to the soft tissue inconsistent with the procedure.
- 0 There is an undercut which cannot be managed to allow fabrication of an appropriate restoration.

