PROSTHODONTICS

Prosthodontic Section Overview

The Prosthodontic Section is a three and a half (3½) hour exam consisting of two (2) procedures on simulated teeth:

1. Preparation of an anterior tooth for a full-coverage crown.
2. Preparation of two abutments to support a posterior three-unit fixed partial denture prosthesis.

The preparations are performed on simulated teeth in a mounted articulator and manikin that is positioned to simulate working on a patient.

You will be given three and a half (3½) hours to complete the exam and will be allowed in the simulation lab an additional 30 minutes before the exam to set up. The Prosthodontic Section is a scheduled time block to which Candidates are randomly assigned. Approximately four (4) weeks prior to the exam, you will receive your schedule with your assigned time block.

WREB examines Candidates with varying educational backgrounds and schools may teach different prosthodontic procedures. WREB does not look for one standard procedure and scores performance according to the Prosthodontic Scoring Criteria Rating Scale at the end of this section.

Supplies

Acadental materials will be used for the Prosthodontic Section. In the simulation lab, you will receive in a ziplock bag:

1. A Prosthodontic Worksheet (sample, pg. 98)
2. The maxillary ModuPRO® One arch to be treated
3. A CheckMate One™ – You will use the CheckMate One™ during the exam to make PVS putty matrices for examiner grading

You will need to provide:

1. A ModuPRO® One model
2. The mandibular ModuPRO® One arch
3. Articulator required at some sites (check your exam site’s information)

The “Site Information” (available at wreb.org) will have details on compatible equipment and whether you may purchase supplies through the school. Arches may be purchased directly from Acadental at acadental.com/WREB. Only the supplies listed in the "Site Information" will be provided by the school. This will include a PVS (or PVS-like) regular set putty material for making the putty matrices. It should not be light body, but regular or heavy body. Schools have been asked to provide the PVS material, but some may not. You must check the "Site Information" for your exam site to verify. If the school is not providing, it is your responsibility to provide the PVS material. You must provide all other supplies and equipment, including a knife to section the PVS putty matrices, such as an X-ACTO® knife or a Bard-Parker® handle with a #11 or #25 blade.
You are allowed to bring the Dental Exam Candidate Guide into the simulation lab and refer to it during the exam. Notes, textbooks or other informational material must not be brought into the simulation lab. No magnification other than loupes is allowed.

**Exam Procedure**

You will prepare a maxillary central incisor for an All Ceramic Crown (ACC) restoration:

**Tooth #9**

The teeth to be prepared as abutments for the posterior three-unit fixed partial denture prosthesis to replace missing Tooth #4 will be:

**Teeth #3 and #5**

For each posterior abutment, you will select and circle on the Prosthodontic Worksheet your preferred restorative material for the simulated situation. Preparation characteristics should reflect requirements of the restorative material selected. Restorative material choices are verified by a Floor Examiner during a setup check before you begin preparation of the abutments.

Restorative material for the maxillary central incisor will be:

- ACC: All Ceramic Crown (porcelain) restoration, (including lithium disilicate)

Restorative material choices for the three-unit fixed partial denture are:

- FCC: Full Coverage Crown – Cast metal (gold) or monolithic zirconia
- PFM: Porcelain Fused to Metal (or to a zirconia substructure)

There will be an assigned time for the Prosthodontic Section. You should review your clinical exam schedule carefully when you receive notification that group assignments have been made (approximately four (4) weeks prior to the exam).

You will report to the designated simulation lab at the appointed time. You must bring your personal handpieces, burs, and anything else needed to complete preparations on simulated teeth in a simulation environment. When entering the simulation lab, make sure you are wearing your Candidate ID Badge and it is visible. As a reminder, all electronic devices, including cell phones and smart watches, are prohibited in the simulation lab.

Stations have been pre-assigned and will be marked by a yellow numbered card. When you enter the simulation lab, see the Proctor, who will give you your assigned work station number. You must sit at the unit assigned to you. Find your assigned unit, then pick up your model from the Proctor. It is recommended you do this after you have confirmed that you have all required instruments and materials and will not need to leave the simulation lab. After receiving the model, you may not leave the simulation lab without notifying the Floor Examiner. The Floor Examiner must check that the correct arch is mounted in the manikin prior to your leaving the simulation lab. A Candidate who leaves the simulation lab or removes the arches at any time during the exam is subject to failure if permission was not received from the Floor Examiner.
You will have 30 minutes to set up your station, ensure handpieces are working, fabricate matrices, mount articulators, fill out the worksheet, and obtain the required setup check before the Prosthodontic Section officially starts. If there are mechanical problems with your unit, you must notify the Floor Examiner immediately.

Prior to setup check, you will use the CheckMate One™ to fabricate two polyvinyl siloxane (PVS) putty matrices capturing preoperative tooth form. The matrices will be used by Grading Examiners to evaluate aspects of tooth reduction according to the Prosthodontic Scoring Criteria Rating Scale. Two putty matrices are required: one maxillary anterior matrix and one maxillary posterior matrix covering the abutment teeth to be prepared. The matrices should be fabricated on the benchtop before mounting the arches.

An instructional video that demonstrates proper fabrication and sectioning of the putty matrices is available for review at acadental.com/checkmateone.

Section the matrices facial-lingually through the center of each tooth to be prepared. A properly sectioned anterior matrix yields two (2) pieces; a properly sectioned posterior matrix yields three (3) pieces. Write your Candidate ID Number with a permanent black marker on each piece of the matrix and, from anterior to posterior, number each piece 1-5. The resulting five marked matrix pieces will be checked by the Floor Examiner as part of the setup check required before start of the exam. The five marked matrix pieces must be submitted to the Proctor along with the treated arch containing the completed preparations at conclusion of the exam.
The Floor Examiner will perform a setup check and initial your Prosthodontic Worksheet. The following should be ready for the Floor Examiner:

1. The Prosthodontic Worksheet (sample pg. 98) is properly completed. Candidate ID Number and the date must be legible in the spaces provided on the worksheet. The worksheet designation has been circled for the intended restorative material.
2. The maxillary arch has Candidate ID Number written on palate with permanent black marker.
3. The articulator with arches containing teeth to be prepared is mounted on the manikin.
4. The manikin, in a normal patient head position, open at a normal vertical dimension, and not overextended.
5. The putty matrices are fabricated, sectioned, numbered 1-5, (anterior to posterior), and marked with the Candidate ID Number.
6. Light on.
7. Mirror available.

If anything needs to be corrected, the Floor Examiner will ask you to make the necessary correction and return to recheck things before initialing your worksheet. If everything is in order, the Floor Examiner will initial the Floor Examiner line on the worksheet.

Do not start treatment until you have setup check approval from the Floor Examiner and the Floor Examiner has announced the start of the exam. The Floor Examiner’s announcement will be similar to “You may now begin your preparations.” Starting to prepare teeth before being authorized to begin will result in failure of the Prosthodontic Section. Once the announcement is made, you will have three and a half (3½) hours to complete the section.

Once a setup check has been received, arches are not to be removed from the manikin head. If you need to leave the simulation lab for any reason after receiving your arches, you must notify the Floor Examiner. Once a setup check is received, the maxillary arch can only be removed when the exam is completed or with permission from the Floor Examiner. A Candidate who leaves the simulation lab or removes the arches at any time during the exam is subject to failure if permission was not received from the Floor Examiner.

The Floor Examiner will be available throughout the session to answer questions relative to administration of the exam and proper completion of forms. The Floor Examiner is also responsible for monitoring exam security and will circulate through the simulation lab and observe Candidates while the exam is underway. The Floor Examiner will monitor Candidates to ensure that:

- Proper patient head position and normal vertical dimension are appropriately simulated throughout the exam
- None of the simulated dental arches or teeth are removed from any articulator until they are ready to be submitted
• Universal precautions are followed
• Candidates work independently

You should inform the Floor Examiner immediately if a problem arises. For example, you should notify a Floor Examiner if there is clinic equipment malfunction/failure. Lost time due to school equipment failure may be compensated if it is more than fifteen (15) minutes from the time it is reported to the Floor Examiner. There is no compensation if time lost is less than 15 minutes or if the problem is your own equipment failure.

Similarly, if a tooth loosens in the arch or any other problem arises, stop treatment and inform the Floor Examiner immediately.

Assistants are not permitted for this procedure. Candidates may not assist each other. This includes critiquing of another Candidate’s work or discussion of treatment.

You are to work independently, observe universal precautions, and work in a manner that simulates performing procedures on a patient. Any unprofessional, unethical, or inappropriate behavior could result in immediate dismissal and failure of the Prosthodontic Section.

If, after receiving notice of a violation, a Candidate repeatedly violates universal precautions, then he or she will be dismissed from the session and will fail the Prosthodontic Section.

The finish deadline for each exam session is fixed. Candidates who report late to their assigned Prosthodontic session will have less than three and a half (3½) hours to complete their preparations. WREB cannot extend the time for individual Candidates. Candidates who complete their preparations early may submit their arch, matrices, and worksheet to the Proctor and leave.

**Completing the Section**

When turning in your ziplock bag after treatment, be sure it includes:

1. Your completed *Prosthodontic Worksheet*.
2. The treated maxillary arch with Candidate ID Number written on palate with permanent black marker (not obstructing the pre-printed manufacturer code).
3. Putty matrices (five pieces) with:
   • Candidate ID Number written on each piece.
   • Each piece numbered 1-5, anterior to posterior.
   • Pieces placed over corresponding teeth.

**Do not include** the CheckMate One™ in the ziplock bag.

It is your responsibility to ensure that all materials listed above are turned in to the WREB Proctor. The proctor will note your checkout time, but is not responsible for checking your materials. **Once you have left the simulation lab, you will be subject to failure of the Prosthodontic Section for items not turned in.**
The Simulation Floor Examiner will announce and remind Candidates still working of remaining time at intervals of 30 minutes, 15 minutes, 5 minutes, and 1 minute before the deadline; however, completing the exam and appropriately submitting everything required to the Proctor on time remains wholly the Candidate’s responsibility. Late penalties will be assessed to Candidates who exceed the three and a half (3½) hours allotted for the exam. You must have your treated maxillary arch and putty matrices turned in on time to avoid a late penalty. A deduction to the Prosthodontic score will be assessed for each five (5) minutes beyond the end of the time allowed. After 15 minutes, all points for the Prosthodontic Section will be lost. (See page 95 for “Late Penalties.”)

A random selection of teeth may be evaluated at the end of each exam. Any alteration or replacement of a tooth will result in failure of the entire exam and appropriate disciplinary action will be taken. Examiners may remove the teeth from the sextants to look for irregularities.

**Definitions**

The following definitions are provided to assist you in more fully understanding scoring criteria and communications with Examiners:

**Abutment**: A tooth that provides support or anchorage for a fixed or removable prosthodontic restoration.

**Cavo-Surface Angle**: The angle formed by the junction of the cavity wall and surface of the tooth.

**Axial Wall**: The internal cavity surface parallel to the long axis of the tooth.

**Bevel**: A plane, or to create a plane, sloping from the horizontal or vertical that creates a cavosurface angle greater than 90°.

**Bridge**: A fixed restoration that replaces one or more missing natural teeth.

**Cavo-Surface Margin or Cavo-Surface Line Angle**: The junction of the prepared cavity wall or margin and unprepared surface of the tooth. It comprises the entire external outline of the preparation and is (or should be) continuous.

**Chamfer**: A finish line or margin design with a rounded internal axio-gingival line angle in which the gingival floor meets the external cavosurface at approximately 90°.

**Convergence**: The angle of opposing preparation walls which, if projected in a gingival to occlusal direction, would meet at a point some distance from the tooth.

**Divergence**: The angle of opposing preparation walls which, if projected in an occlusal to gingival direction, would meet at a point some distance from the tooth.

**Finish Line**: The terminal portion of the preparation adjacent to any unprepared portion of the tooth.
**J Margin**: A term used to describe a margin that at or near its cavosurface is more coronal than elsewhere between the cavosurface and the axial wall of the preparation.

**Line of Draw**: The path or direction of withdrawal or insertion of any fixed or removable restoration that allows full seating of the restoration. For full seating of a multi-abutment fixed or removable restoration the path or direction of withdrawal or insertion for all abutments, together, must be aligned.

**Major Tissue Trauma**: Major tissue trauma is defined as gross iatrogenic damage to the simulated gingiva, adjacent teeth, or surrounding tissue resulting in significant injury to the simulated patient. Examples include lacerations, burns, amputated papillae, large tissue tags, or adjacent teeth requiring immediate care had the treatment been on a patient.

**Occluso-Axial Line Angle**: The angle formed by the junction of the prepared occlusal and axial surfaces.

**Resistance Form**: Features of a tooth preparation that enhance stability of a restoration and resist dislodgement along an axis other than the path of insertion.

**Retention Form**: Features of a tooth preparation that resist dislodgement of a restoration in a vertical direction or along the path of insertion.

**Shoulder**: A finish line or margin design in which the gingival floor meets the external cavosurface at approximately 90°.

**Taper**: Taper is to gradually become increasingly narrow in one direction.

**Reference Material**

**PROSTHODONTIC SCORING**

The Prosthodontic Section consists of two (2) procedures on simulated teeth:

1. Preparation of an anterior tooth for a full-coverage crown.
2. Preparation of two abutments to support a posterior three-unit fixed partial denture prosthesis.

**Preparation Weighting**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occlusal Reduction</td>
<td>30%</td>
</tr>
<tr>
<td>Axial Reduction</td>
<td>25%</td>
</tr>
<tr>
<td>Margins and Finish Line</td>
<td>35%</td>
</tr>
<tr>
<td>Operative Environment</td>
<td>10%</td>
</tr>
</tbody>
</table>

The Prosthodontic Section is graded by three independent Grading Examiners. Grading Examiners score according to the *Prosthodontic Scoring Criteria Rating Scale* on page 96. Each preparation is evaluated on the four (4) criteria listed above. For each evaluated criterion, the score is determined by multiplying the median (middle) score by the designated weight factor. The sum of the resulting products is the score for the preparation. The average score for all three preparations, minus any applicable score deductions, is the overall score for the Prosthodontic Section. A score of 3.00 or higher is required to pass the Prosthodontic Section.

**Prosthodontic Onsite Retakes**

Candidates with a failing result in the Prosthodontics Section may have the opportunity to retake the section at the same exam site on Clinic Day 3 with no additional fees. This will be dependent on each Candidate’s scheduled sections and individual time constraints. Candidates with a validated critical error will not be allowed to retake the Prosthodontics Section at the exam site. Candidates attempting an onsite retake for Prosthodontics on Clinic Day 3 must arrive in the simulation lab no later than 7:45 a.m. Onsite retakes for Prosthodontics are not available on Clinic Days 1 or 2. Three and a half (3½) hours will be allotted for Prosthodontic retakes on Clinic Day 3. If, for any reason, the section is not retaken onsite, Candidates may retake the Prosthodontics Section at a different site (retake fees will apply).

**SCORE DEDUCTIONS**

<table>
<thead>
<tr>
<th>Bridge Preparation</th>
<th>= 0.5 deduction from each abutment score.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No path of insertion (no Line of Draw)</td>
<td></td>
</tr>
<tr>
<td>(Validated by two or more Grading Examiners)</td>
<td></td>
</tr>
</tbody>
</table>
### LATE PENALTIES

Time is determined by the official WREB clock displayed in the simulation lab.

- 1 to 5 minutes late = 0.2 deduction
- 6 to 10 minutes late = 0.4 deduction
- 11 to 15 minutes late = 0.6 deduction
- 16 or more minutes late = Loss of all points for the Section

### UNUSUAL SITUATIONS

The following unusual situations result in failure of the Prosthodontic Section:

- Left simulation lab with one or both arches
- Started without a setup check or before start time announced
- Repeated failure to use universal precautions
- Repeated violation of simulation protocol

### CRITICAL ERRORS

The following critical errors result in failure of the Prosthodontic Section and preclude an onsite retake:

- Preparing the wrong tooth
- Major tissue trauma (validated by two or more Grading Examiners)
<table>
<thead>
<tr>
<th>Prosthodontic Scoring Criteria Rating Scale</th>
<th>5–Optimal</th>
<th>4–Appropriate</th>
<th>3–Acceptable</th>
<th>2–Inadequate</th>
<th>1–Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occlusal/Incisal Reduction</td>
<td>Optimal (FCC 1.5 mm, PFM &amp; ACC 2.0 mm). Occlusal planes are well defined and accurately reproduce occlusal contours.</td>
<td>Slightly deviates from optimal. Occlusal reduction is sufficient. Occlusal planes are slightly flat or deep.</td>
<td>Deviates (up to 1.0 mm) from optimal. Occlusal planes are moderately flat or deep. Sharp angles may affect the restoration.</td>
<td>Deviates &gt; 1.0 mm from optimal. Occlusal planes are severely flat or deep. Sharp angles will affect crown fabrication or prognosis.</td>
<td>Tooth is nearly in contact or pulp could be compromised. Occlusal planes are absent. Sharp angles would prevent well-fitting crown fabrication.</td>
</tr>
<tr>
<td>Axial Reduction &amp; Taper (Resistance &amp; Retention)</td>
<td>Optimal (FCC 0.5–1.0 mm, PFM &amp; ACC 1.0–1.5 mm). Follows natural contour of the tooth. Axial walls are smooth and well defined.</td>
<td>Slightly deep, shallow, or irregular. Walls are slightly rough. Taper is appropriate. (10–15°) No undercut.</td>
<td>Moderately deep (FCC up to 2.0 mm, PFM or ACC up to 2.5 mm) shallow, rough, or irregular. May impact contour or appearance of the restoration. Taper is acceptable. (15–20°) or &lt;5°</td>
<td>Severely deep or shallow. Excessively short, rough, or irregular. Will impact appearance or function of the restoration. Taper is excessive. (20–30°) Undercut will result in an open margin or interfere with seating.</td>
<td>Grossly deep or shallow. Misshapen, short, rough, or irregular. Adhesive restored tooth remains in contact or pulp could be compromised. Taper is gross. (&gt;30°) Gross undercut. No path of insertion (cannot be seated).</td>
</tr>
<tr>
<td>Margins &amp; Finish Line</td>
<td>Gingival margin is at least 1.0 mm from the adjacent tooth. Margin design is optimal (FCC 0.5 mm, PFM &amp; ACC 1.0–1.5 mm). Margins are smooth and of uniform width. Finish line is continuous, flowing, well defined, coronal to and within 0.5 mm of the gingival margin.</td>
<td>Gingival margin is ~ 1.0 mm from the adjacent tooth. Margin design is appropriate, but slightly varies in width. There is no “T” margin.</td>
<td>Gingival margin is 0.5 mm–0.9 mm from the adjacent tooth. Margin design is acceptable, but is moderately uneven (deep or shallow), or moderately rough. There is a mild “T” margin. Finish line is questionably continuous or moderately irregular, or ~1.0 mm coronal to the gingiva.</td>
<td>Gingival margin location compromises die fabrication. Margin design is severely deep/shallow or rough. Width is very uneven. There is a severe “T” margin. Finish line is discontinuous, is severely irregular, uneven, poorly defined, 1.1–2.0 mm above the gingival margin or is subgingival.</td>
<td>Gingival margin is in contact with the adjacent tooth. Margins are not evident, grossly inappropriate, uneven or wide. There is a gross “T” margin. Finish line is non-existent, indistinct, grossly irregular or more than 2.0 mm from the gingival margin.</td>
</tr>
<tr>
<td>Operative Environment</td>
<td>No damage to the gingiva. No damage to adjacent or opposing teeth.</td>
<td>Slight damage to the gingiva. Minor damage to an adjacent tooth (can be polished without changing the contact).</td>
<td>Moderate damage to the gingiva. Moderate damage to an adjacent tooth (can be polished but may alter contact shape).</td>
<td>Severe damage to the gingiva. Biologic width may be violated. Severe damage to adjacent tooth (may require restoration to create acceptable contact.)</td>
<td>Gross damage to the gingiva. Biologic width is violated. Gross damage to adjacent tooth. Adjacent tooth requires restoration.</td>
</tr>
</tbody>
</table>

**FCC:** Full Coverage Crown - Cast metal (gold) or monolithic zirconia  
**PFM:** Porcelain Fused to Metal (or to a zirconia substructure)  
**ACC:** All Ceramic Crown (porcelain) restoration, (including lithium disilicate)
Taper Determination Cone

Examiners will reference this diagram to determine the degree of taper on the crown’s preparations.
### Prosthodontic Worksheet

**Candidate ID#:** [Blank]
**Date:** [Blank]

### Anterior Crown Preparation

**Anterior Tooth**
- **Restorative Material:** ACC

### Bridge Abutment Preparations

**Anterior Abutment**
- **Restorative Material:** FCC, PFM

**Posterior Abutment**
- **Restorative Material:** FCC, PFM

### Setup Check

- **Completed Prosthodontic Worksheet**
- **Maxillary arch has Candidate ID Number written on palate with permanent black marker**
- **Arches/articulator properly mounted in manikin**
- **Manikin in normal patient treatment position with normal vertical dimension**
- **Putty matrices (five pieces) are fabricated and sectioned:**
  - Candidate ID Number written on each piece
  - Each piece numbered 1-5, anterior to posterior
- **Light on**
- **Mirror available**

### Checklist of Required Items after Treatment (in ziplock bag)

- **Completed Prosthodontic Worksheet**
- **Treated maxillary arch with Candidate ID Number written on palate with permanent black marker**
- **Putty matrices (five pieces) with:**
  - Candidate ID Number written on each piece
  - Each piece numbered 1-5, anterior to posterior
  - Pieces placed over corresponding teeth
- **Do not include** the CheckMate One™ in the ziplock bag
- **Deliver ziplock bag to the WREB proctor before leaving the simulation lab.**

### Restorative Material Choices:
- **FCC** Full Coverage Crown – Cast metal (gold) or monolithic zirconia
- **PFM** Porcelain Fused to Metal (or to a zirconia substructure)
- **ACC** All Ceramic Crown (porcelain) restoration (including lithium disilicate)

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