



**WRITTEN
EXAMINATION
GUIDELINES
2017**

Notice from the American Board of Endodontics

The Directors of the American Board of Endodontics are increasingly concerned that collaborative efforts are being employed by Candidates participating in the Written Examination.

The Directors are very concerned that Candidates may feel that passing on questions from current or previous examinations to other Candidates is “fair game” and that this is really not cheating.

It is important to note that all Candidates sign an agreement with the American Board of Endodontics to preserve the confidentiality of the information on both the ABE Written and Oral Examinations.

Transmitting test questions to other candidates or knowingly receiving this information is most certainly cheating. Participation in this or any other similar endeavor will result in automatic failure of the examination and loss of Board Eligibility.

The American Board of Endodontics is committed to ensuring a fair and equitable examination for all Candidates who participate in the certification process.

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Written Examination Timelines

2017 Examination

Application Deadline: February 10, 2017

The ability to register on March 20, 2017, requires that your application is received in the Central Office no later than February 10, 2017. **Applications will not be accepted after February 10, 2017.**

Registration Date: March 20, 2017

Registration begins on March 20, 2017, and is facilitated by Pearson Vue.

Test Dates: May 17, 2017

The 2017 Written Examination will be offered on May 17, 2017. Those eligible to take the exam can choose from a four-hour morning or afternoon session at Pearson Vue .

Applications

Applications are available may be down- loaded from the ABE Website

<http://www.aae.org/american-board-of-endodontics/board-certification-process/applications.aspx>

Website

Our website also contains:

- The current dates for the examination
- Application submission deadlines
- Registration deadlines.

Pearson Vue and Measurement Research Associates (A division of Measurement Incorporated)

Pearson Vue's Website

By logging into Pearson Vue's Website <http://www.pearsonvue.com/abe/>

You will be able to:

- View testing center locations
- Take an online tour of a Pearson Professional Center
- Get information to register via phone
- Contact customer service at Pearson Vue
- Hyperlink to Measurement Research
- Access the Measurement Research Associates' Website and view the Tutorial
- View Frequently Asked Questions (FAQ)
- Read the Candidate Rules

We highly encourage you to visit these sections to become more familiarized with the examination process.

Pearson Vue Testing Centers

In association with Measurement Research Associates, Inc. and Pearson Vue, the ABE Written Examination is administered as a computer-based examination at Pearson Vue testing centers. There are strategically located testing centers around the world. All of Pearson's testing centers are uniform in size, equipment, appearance and procedures, ensuring a consistent and secure examination experience for all Candidates.

Location of Testing Centers

To view the list of Pearson Vue testing centers:

1. Go to <http://www.pearsonvue.com/mra/locate>
2. Select country
3. Click **Next**
4. Using the drop down box, select your preference in state/province/region
5. Click **Next**

Testing center directions will be included in your confirmation letter.

Tutorial

The computer-based examination is easy to use and requires no previous computer experience. To ensure every Candidate is at ease with the format of the examination, a tutorial has been designed to familiarize you with the computer screens you will see during the examination and the steps necessary to respond to the questions, move on to the next question and review your responses. To access the tutorial and instructions on how to download it to your computer, go to: <http://www.measurementresearch.com/testing/tutorial.shtml>.

There are two parts of the tutorial. Part one provides you with the opportunity to learn how to navigate through the testing format with a "guided tour" followed by the opportunity to take a demonstration test. Part two allows you to get the exact feel of taking an exam on the computer with a demonstration test.

You may take the tutorial as many times as you wish until you are completely comfortable with the process.

Written Examination Process

Authorization Letter

Once the Prospective Board Candidate Application, Preliminary Application and/or Written Examination Registration form has been processed, an authorization letter will be sent from the Central Office. You must have this authorization letter before contacting Pearson Vue to register for the examination. The Board notification letter will include your required identification number and registration instructions. All reservations are on a first-come-first-served basis. Please be sure to have a back-up location chosen.

Registration via Telephone

If you have received your authorization letter, you can schedule your examination beginning March 20, 2017. Please call 877/435-1414 - you will be prompted to press #5 to be connected to a customer service representative.

Cancellation and No-Show Procedures

Cancellations must be made at least one business day (24 hours) before the examination is scheduled. Candidates may cancel over the phone (877/435-1414). Upon confirmation of your cancellation from Pearson Vue, you must immediately notify the ABE Central Office (312/266-7310) of the cancellation.

Candidates who do not arrive in time for the examination or have not cancelled at least one business day before the examination will be considered a "No Show." The ABE is invoiced for all "No Show" Candidates; therefore, the fee can not be applied to a future examination and is not eligible for a refund.

Confirmation Letter

After the registration process has been completed, you will receive a confirmation letter via e-mail, fax or postal mail from Pearson Vue. It is highly recommended that you provide your e-mail address for receipt of the confirmation letter. Your Pearson Vue confirmation letter is one of the documents required to for check-in.

Examination Time

You are required to arrive at least 30 minutes prior to the scheduled testing time to allow for check-in and verification of identification. Candidates who arrive later than 15 minutes prior to the start of the examination may not be allowed to take the examination. Traffic and/or parking problems will not validate a late arrival. The test administrator will make every effort to accommodate a late arriving Candidate; however, the administrator must ensure that other Candidates are not affected. In line with the cancellation policy, late arrivals will not be eligible for a refund of the examination fee. The non-refunded fee can not be applied to a future examination.

Check-in Procedures

When you arrive at the testing center, the staff is required to adhere to the following procedures:

1. Request confirmation letter
2. Request two forms of identification (ID)
3. Check ID's
4. Capture electronic signature and verify that signatures match
5. Capture palm vein recognition
6. Capture digital photograph
7. Distribute rules document
8. Show area where personal belongings are stored
9. Offer erasable note board and pen
10. Admit

Required Admission Identifications

You are required to have *three pieces of identifications to gain admission into the examination.*

- Confirmation letter
- ID with signature and photo (non-expired)
- ID with signature (non-expired)

Please verify that your name as shown on our ABE authorization letter exactly matches the name on your identification. This is requirement for registration and is mandatory for admission at the testing center. If it does not match, contact the AAE's membership department via email at membership@aae.org to get your record corrected and Margie Hannen at abe@aae.org. Failure to follow these instructions could prevent your admission to the testing center.

Acceptable Forms of Photo Identification

Must be government-issued and include a photograph and signature.

- Valid (not expired) driver's license
- Valid (not expired) state identification card
- Valid (not expired) military identification card
- Valid (not expired) passport
- Valid (not expired) alien registration cards

Acceptable Forms of Signature Identification

- Social security card
- Valid credit card
- Bank automated-teller machine card

Palm Vein Recognition, Signatures and Photographs

Palm vein recognition, signatures, and photographs will be taken at the testing center. These are for internal use at the center only. You cannot take the examination without first having your palm vein, signature, and photograph taken.

Written Examination

Examination Description

General Description

The Written Examination of ABE certifying process is a computer-based test consisting of 200 multiple choice questions. Questions consist of a stem with four or five foils, and are designed to test recall skills and the Candidate's ability to apply knowledge, interpret data and solve problems.

Design of Questions

Included in the examination are clinical case histories, clinical photographs and radiographs.

Examination Mechanics

Presentation

All questions are multiple-choice and presented one-at-a-time on the computer screen.

Moving between Questions

The **Next** and **Previous** buttons are used to move between questions.

Entering Answers

You may enter responses by "clicking" on the response you believe to be the correct answer or typing in the letter of the response. Responses are recorded directly into the computer.

Reviewing and Altering Answers

You may review and alter responses after they have been entered into the computer during the examination or after you have attempted to answer all of the questions. At any time during the examination session, you can return to an item and change your answer.

Skipping Questions

You can skip questions and return to answer them later. You can choose not to answer a question by simply moving to the next item in the examination. At any time during the examination session, you can go back and answer the item by clicking on its number in the view list.

Flagging Questions

You may flag questions for later review. You can then go through the review list to all flagged items or you can sort the list so that the flagged items appear together at the top.

Time

Review time is included in the total amount of time allowed for the exam. Time is kept on the individual computer workstations. Your remaining time is displayed at the bottom of the screen and is continuously updated. In addition, a message periodically appears on the screen indicating the amount of time remaining.

Ending the Examination

When you have answered, and reviewed all the questions you may click the "END" button. Another box will ask you to confirm that you are ready to end the test. Once you confirm that you want to end, the test will close and you will not be able to regain entry. The examination will also end if the maximum time allowed for the examination expires.

Frequently Asked Questions

The FAQ's provides an excellent format for learning about computer-based testing as well as providing you with information regarding registering for and taking the examination. To access the FAQ's section, follow this link <http://www.measurementresearch.com/testing/faq.shtml>.

If you have questions about the exam or your results, please contact Margie Hannen, ABE Central Office (312/266-7310).

Examination Rules

No Personal Items Allowed

Personal items are not allowed in the testing room. Personal items include but are not limited to:

- cellular phones
- hand-held computers
- personal digital assistants (PDAs)
- pagers
- iPods / MP3 players
- Portable radios
- any other electronic device
- watches
- wallets
- purses
- hats
- bags
- coats
- books
- notes

You must store all personal items in a locker. Pearson Professional Centers are not responsible for lost, stolen, or misplaced personal items.

Erasable Note Board Provided

The Pearson Professional Center test administrator will provide you with an erasable note board and a marker before you enter the testing room. You may not remove these items from the testing room at any time during the exam and you must return all items to the test administrator after the exam.

You may not write on the erasable note board until after the exam has been started. If you need to clean your note board during the exam, raise your hand and the test administrator will assist you.

Earplugs Provided

Earplugs are available from the test administrator on request.

Logging In

The Pearson Professional Center test administrator will log you into your assigned workstation, verify that you are taking the correct examination and start the exam.

Noise and Distractions

Please remain in your assigned seat. Eating, drinking, smoking and making noise that creates a disturbance for other Candidates are prohibited during the exam.

Monitored Examination Room

To ensure a high level of security throughout your testing experience, you will be monitored at all times. Both audio and video will be recorded.

Unscheduled Breaks

To request an unscheduled break, raise your hand to get the test administrator's attention. The administrator will set your testing workstation to the break mode and restart the exam for you when you return. The exam clock will NOT stop while you are away.

Breaks

You must leave the testing room for all breaks. When you leave the testing room, you will have your palm vein captured, and you the same procedure will occur again before you re-enter the testing room.

Questions and Concerns during the Examination

If you have questions or concerns at any time during the exam, raise your hand and the test administrator will assist you if other Candidates are not disturbed. The test administrator will not answer exam-specific questions.

If you have concerns about any of the questions as you work on the exam, you can make a note on the erasable board or mark an item for review onscreen. You'll have an opportunity to enter comments in the exam, and these comments will be forwarded to MRA.

If you experience hardware or software problems or distractions that affect your ability to take the exam, notify the test administrator immediately by raising your hand.

Finishing the Examination and Leaving the Testing Room

After you finish the exam, you will be asked to complete an optional, onscreen evaluation. After completing the evaluation, raise your hand. The test administrator will come to your workstation and ensure your exam has ended properly. You must return the erasable note board and marker to the test administrator. Do not leave these items at your testing workstation. You will have your palm vein captured when you leave the testing room.

Penalty for Not Abiding by Examination Rules

If you do not follow the above rules, if you tamper with the computer, or if you are suspected of cheating, appropriate action will be taken. This may include invalidation of your exam results.

Examination Confidentiality

Candidates will acknowledge and confirm the following confidentiality statement and examination policy on transcribing examination data prior to the examination:

"I understand that the content of the certification examination is proprietary and strictly confidential information. I hereby agree that I will not disclose, either directly or indirectly, any questions or any part of any questions from the examination to any person or entity. I understand that the unauthorized receipt, retention, possession, copying or disclosure of any examination materials, including but not limited to the content of any examination questions, before, during, or after the examination, may subject me to legal action. Such legal action may result in monetary damages and/or disciplinary action including denial or revocation of certification."

Examination Results

Examination Scoring

To ensure that all responses are accurately recorded and that backups are available in case of hardware problems, five different copies of the responses are maintained. Three of these copies are kept on the workstation and two are kept on a database server. The copies are compared after the examination to ensure that are error free. Evaluation of performance is criterion based and analyzed in consultation with Measurement Research Associates.

Receipt of Examination Results

Please note that you will NOT receive a score report at the end of the exam.

Please remember that your results of the examination will be mailed to your address of record approximately four to six weeks after the examination. We are not responsible for delays because of outdated contact information on file. New letters will not be sent out for two weeks from the date of the original mailing.

All results letters are mailed out in identical envelopes on the same day. Frequently, the letters are not delivered on the same day, we have absolutely no control over this. Please wait two weeks before contacting the Central Office regarding your letter.

Exam results will not be provided over the phone, by fax, or by email.

Scores and rankings are not compiled or released. Exam data is automatically encrypted and transferred electronically to a secured facility. From there, it is forwarded to Measurement Incorporated. Pearson Professional Centers do not have access to the exam data.

Appeal Process for an Adverse Decision

NO APPEAL may be taken from an adverse decision based on an individual's receipt of a failing grade on the Written Certification Examination unless extraordinary circumstances exist, as determined solely by the Board.

To be valid, the Secretary of the Board must receive the request for reconsideration within 30 calendar days after receipt by the Candidate of notice of the adverse decision. The request must contain a statement of why the Candidate believes that the adverse decision was improper and must include any supporting documentation that the Candidate wishes to have considered as part of the reconsideration. The request must be accompanied by a check or money order made payable to the American Board of Endodontics in the amount of \$100 to cover administrative costs associated with the appeal process. This fee will not be refunded, regardless of the outcome of the appeal.

Examination Preparation

How to Prepare for the Written Examination

There is no one single text or review course that can completely prepare a Candidate for the Written Examination.

Because of the contemporary and constantly developing nature of a number of critical areas, particular study should be directed towards basic concepts and associated literature of:

- cellular and molecular biology
- inflammation, immunology and virology
- management of medically compromised patients
- pharmacology of antibiotics, analgesics, and local anesthetics to include drug interactions
- microbiology to include anaerobic bacteria and current genus and species identification
- differential diagnosis of radiolucent and radiopaque lesions
- pulpal and periradicular pathosis
- wound healing
- bone regeneration

Appendix A: Matrix

The Written Examination is constructed by selecting questions using a text matrix that incorporates the clinical and basic sciences. The matrix currently used is:

Biomedical Sciences:

- I. **Anatomy**
 - A. **Soft Tissue**
 1. **Pulp**
 2. **Mucosa**
 3. **Nerves**
 4. **Muscles**
 - B. **Hard Tissues**
 1. **Bone**
 2. **Teeth**
 - a. **Anterior**
 - b. **Maxillary**
 - c. **Mandibular**
2. **Embryology, Histology and Physiology**
(Pulp, Periradicular)
 - A. **Development (Tooth, Accessory Canals, Dentin)**
 - B. **Pulp**
 1. **Age Changes**
 2. **Histology**
 3. **Physiology**
 4. **Nerves**
3. **Microbial Ecology**
 - A **Oral Flora**
 - B **Caries**
 - C **Pulpal**
 - D **Periradicular**
 - E **Assay Methods**
4. **Infectious and Immunologic Processes**
 - A **Oral Health**
 - B **Disease**
5. **Pathophysiology**
 - A **Pulp**
 - B **Periradicular Tissues**
6. **Wound Healing**
 - A **Soft Tissue**
 - B **Hard Tissue**
7. **Oral Medicine and Oral Pathology**
8. **Pharmacotherapeutics**
 - A **Mechanisms**
 - B **Interactions**
 - C **Effects of Drugs**
9. **Research Methodology and Statistics**
10. **Biomaterials**
 - A **Instruments**
 - B **Obturation Materials**
 - C **Intracanal Medicaments**
 - D **Sealers**

- E Surgical Materials
- F Temporary Filling Materials
- G Restorative Materials
- H Irrigating Solutions

Clinical Sciences:

11. **Diagnosis, Treatment Planning and Prognosis**
 - A. Clinical Tests
 - B. Chief Complaint/History
 - C. Differential Diagnosis
 - D. Treatment Planning
 - E. Prognosis
12. **Non-surgical Endodontic Treatment**
 - A. Access
 - B. Instrumentation
 - C. Obturation
 - D. Bleaching
 - E. Retreatment
 - F. Apexification
 - G. Apical Barrier
 - H. Perforation Repair (internal)
 - I. Restoration
 - J. Flare-ups
 - K. Postoperative Pain
 - L. Regeneration/Revitalization
13. **Surgical Endodontic Treatment**
 - A. Root End Preparation
 - B. Root End Filling
 - C. Perforation Repair
 - D. Root Resection
 - E. Replantation
 - F. Biopsy
 - G. Prognosis
 - H. Postoperative Pain
 - I. Incision and Drainage
14. **Radiography and Other Diagnostic Imaging Technologies**
 - A. Extraoral
 - B. Intraoral
 - C. Digital Imaging
 - D. Computed Tomography
 - E. Monitoring Dosage
15. **Management of Medically Compromised Patients**
 - A. Diagnosis
 - B. Management (pharmacologic)
16. **Emergency Treatment for Endodontic Conditions**
 - A. Diagnosis
 - B. Anesthesia
 - C. Treatment
 - D. Postoperative Management (pain medication, antibiotics)
 - E. Incision and Drainage, Trephination
17. **Management of Patients with Orofacial Pain and Anxiety**
 - A. Orofacial Pain Diagnosis
 - B. Orofacial Pain Treatment
 - C. Anxiety Diagnosis
 - D. Anxiety Treatment

- 18. Management of Medical Emergencies
 - A. Diagnosis
 - B. Treatment
- 19. Management of Traumatic Injuries
 - A. Diagnosis
 - B. Treatment
- 20. Miscellaneous Topics
 - A. Use of Magnification Technologies
 - B. Intradicular Post and Core Preparation
 - C. Communication with Patients and Health Care Professionals
 - D. Vital Pulp Therapy
 - 1. Apexogenesis
 - 2. Pulp Capping (direct/indirect)
 - 3. Pulpotomy
 - E. Intracoronal Bleaching
 - F. Implants/Extrusion
 - G. Ethics and Jurisprudence

Appendix B: Sample Questions

The American Board of Endodontics has prepared samples of the types of questions used on the Written Examination.

1. According to Lima, Fava, and Siqueira (Journal of Endodontics, 2001) which one of the following antibacterial medications would be expected to be the most effective against *Enterococcus faecalis*?

- A. Clindamycin
- B. 2% chlorhexidine
- C. Clindamycin plus metronidazole
- D. Calcium hydroxide

2. Which of the following devices has been shown to induce changes in the circuitry of cochlear implants?

- A. Electric pulp tester
- B. Apex locator
- C. Electrosurgery unit
- D. Piezoelectric ultrasonic system

3. Pulpal glycosaminoglycans:

- A. Show an affinity for fibrolyns.
- B. Can bind calcium.
- C. Are not responsible for maintaining odontoblast polarity in vitro.
- D. Show a quantitative increase during inflammation.

4. A dental assistant states that she plans to become pregnant and asks if there is a risk from frequent use of nitrous oxide during patient care. Which statement is the MOST ACCURATE regarding risk to her fetus?

- A. Nitrous oxide causes genetic mutations to occur more often.
- B. Risk is minimal if nitrous oxide exposure is no more than 10 hours per week.
- C. There is only a risk in the first trimester.
- D. There are no increased health risks for dental office workers.

5. Kulild and Peters (Journal of Endodontics, 1990) showed that mesiobuccal roots of maxillary first molars contain a second canal:

- A. 55% of the time
- B. 65% of the time
- C. 75% of the time
- D. 85% of the time
- E. 95% of the time

6. Which one of the following statements BEST describes pretrigeminal neuralgia?

- A. It is a type of abnormal odontogenic pain.
- B. It is associated with a severe, shooting pain upon stimulation.
- C. It does not present as a classic paroxysmal pain.
- D. The ophthalmic division is most frequently involved.

7. Ankrum, Hartwell and Truitt (*Journal of Endodontics*, 2004) investigated the incidence of file breakage when ProTaper, K3 Endo, and ProFile systems were used to instrument canals in severely curved roots of extracted molars. Which one of the following statements BEST describes their findings?

- A. The ProTaper had statistically more breakage than the ProFile system.
- B. The K3 had statistically more breakage than the ProFile system.
- C. The ProTaper had statistically more breakage than the K3 system.
- D. The K3 had statistically more breakage than the ProTaper system.
- E. There were no statistically significant differences between the systems.

8. Nusstein, Reader and Beck (*Journal of Endodontics*, 2002) found that short-term drainage (average 1.8 min) from painful, necrotic teeth resulted in:

- A. A significant reduction in overall pain.
- B. A significant reduction in percussion pain.
- C. A significant reduction in swelling.
- D. A significant reduction in the number of analgesic tablets taken.
- E. No significant effect on postoperative pain or swelling.

9. The maximum permissible radiation dose (MPD) for whole-body exposure of a pregnant dental care worker is:

- A. 0.05 Gy per year.
- B. 0.1 Gy per year.
- C. 0.5 Gy per year.
- D. 5 millisieverts (mSv) per year.
- E. 10 millisieverts (mSv) per year.

10. Per the study by Andelin, Browning, Hsu, Roland and Torabinejad (*Journal of Endodontics*, 2002), apical resection of set MTA caused:

- A. Minor disruption of internal bonds and slight leakage.
- B. The MTA to crumble and break-up into fragments.
- C. No leakage of the MTA over the time frame of the study.
- D. No initial leakage, but leakage started after 15 days.

11. Drake, Wieman, Rivera, Walton (*Journal of Endodontics*, 1994) studied the effect of the presence or absence of the smear layer on bacterial colonization of root canals. Which statement best describes their findings?

- A. Teeth without the smear layer contained significantly fewer bacteria.
- B. Teeth with the smear layer contained significantly fewer bacteria.
- C. There was no significant difference between the number of bacteria in teeth with and without the smear layer.
- D. The smear layer caused additional colonization of the root canals.

12. Fouad and Burleson (*Journal of the American Dental Association*, 2003) studied the effect diabetes mellitus has on the outcome of endodontic treatment. Which statement best describes their findings?

- A. Patients with diabetes have an equal likelihood of flare-ups during endodontic treatment as do patients without diabetes.
- B. Patients with diabetes have a reduced likelihood of success of endodontic treatment in cases without preoperative periradicular lesions.
- C. Patients with diabetes have a reduced likelihood of success of endodontic treatment in cases with preoperative periradicular lesions.
- D. Patients with diabetes have an equal likelihood of success of endodontic treatment in cases with preoperative periradicular lesions.

13. Lazarski, Walker, Flores, Schindler and Hargreaves (*Journal of Endodontics*, 2001) evaluated the outcomes of nonsurgical endodontic treatment. Which statement best describes their results?

- A. Endodontists had a higher success rate than general dentists.
- B. Periradicular surgery accounted for approximately 18% of the cases endodontists treated.
- C. Retreatment cases for endodontists accounted for approximately 28% of the patients referred.
- D. Approximately 94% of the treated teeth remained functional for over 3 years.

14. Blood flow in the pulp is regulated mainly by the:

- A. Capillaries
- B. Arterioles
- C. Venules
- D. Arteriovenous (A-V) anastomoses
- E. Postcapillary venules

15. When salicylates are administered concurrently with _____, a greater toxicity of this agent may occur.

- A. Verapamil
- B. Warfarin
- C. Methotrexate
- D. Clindamycin
- E. Atorvastatin