

ENDODONTICS #248

MIDTERM EXAMINATION
 Tuesday, February 20, 2001

#7 49pts

INSTRUCTIONS

Using a #2 pencil, shade in the correct letter on the computer answer sheet provided. There is only one correct answer per question. Be sure your answer sheet has your I.D. number and your name on it.

7. The sensory receptors seen in the dental pulp are seen in very few other areas of the body. Those areas are which of the below?
1. Ear
 2. Eye
 3. Tongue
 4. Nose
 5. Larynx
- a. 1 and 2
- b. 2 and 3
- c. 3 and 4
- d. 4 and 5
- e. 3 and 5
8. In acute inflammation, the first cells to pass through the blood vessel walls into the tissue are:
- a. Eosinophils.
 - b. Lymphocytes.
 - c. Monocytes.
 - d. Polymorphonuclear leukocytes.
 - e. b and c.
- c. Polymorphonuclear leukocytes.
9. A 35 year old African American female presents to the CHSU endodontics dental clinic for a routine dental examination. Periapical radiographs of the lower incisors reveal bilateral unifocal radiolucencies on teeth #23, #24, #25, and #26. The patient has no history of trauma, no periodontal involvement and no caries. The lower incisors test vital to pulp testing (i.e., cold test, palpation and percussion). The most likely diagnosis and treatment would be:
- a. Periapical abscess; RCT is indicated.
 - b. Periapical cyst; RCT is indicated.
 - c. Periapical cement dysplasia; RCT is indicated.
 - d. Periapical cement dysplasia; no treatment is indicated.
 - e. Extract lower incisors.
- d. Periapical cement dysplasia; no treatment is indicated.
10. During a cavity preparation, you injure an odontoblast. Which zone will the undifferentiated mesenchymal cells come from?
- a. Odontoblast layer
 - b. Cell poor zone
 - c. Cell rich zone
 - d. Pulp proper
 - e. None of the above because once an odontoblast is injured, it cannot be replaced.
- c. Cell rich zone
11. Which of the following is not a function of the pulp?
- a. Formation of dentin
 - b. Protective
 - c. Nutritive
 - d. Sensory
 - e. Innervation
- b. Protective

1. The dental pulp is derived from which one of the following cells?
- a. Bud cells
 - b. Endodermal cells
 - c. Outer enamel epithelial cells
 - d. Inner enamel epithelial cells
 - e. Neural crest cells.
- e. Neural crest cells.
2. A cold test best localizes:
- a. Pain of pulpal origin.
 - b. Periapical pain.
 - c. Pulp necrosis.
 - d. Referred pain.
 - e. All of the above.
- a. Pain of pulpal origin.
3. Root canal culturing best determines which of the below?
- a. Presence of any microbe in the root canal
 - b. Ability of operator to clean a root canal
 - c. Whether any infectious organisms are present in the root canal
 - d. All of the above
- d. All of the above
4. What is the correct sequence of tooth development with the correct chronological time?
- a. Bell stage (5 weeks), cap stage (8 weeks), bud stage (14 weeks)
 - b. Bell stage (7 weeks), cap stage (14 weeks), bud stage (24 weeks)
 - c. Bell stage (5 weeks), cap stage (8 weeks), bud stage (14 weeks)
 - d. Bell stage (7 weeks), cap stage (14 weeks), bud stage (24 weeks)
- c. Bell stage (5 weeks), cap stage (8 weeks), bud stage (14 weeks)
5. Which of the following structures is responsible for the unique shape and size of roots?
- a. Dental papilla.
 - b. Dental follicle
 - c. Hertwig's root sheath
 - d. All of the above
 - e. None of the above
- d. All of the above
6. An area of radiolucency on a periapical film in the lower premolar area indicates:
- a. Definite pathology.
 - b. Tonal overexposure.
 - c. Possible mental foramen.
 - d. Root fracture.
 - e. Cementoblastic stage of periapical cemental dysplasia.
- c. Possible mental foramen.

12. Where is the blood flow in the region of the pulp greatest?
- a. Radicular portion of the pulp
 - b. Coronal portion of the pulp
 - c. Cervical portion of the pulp
 - d. Pulp horn of the pulp
 - e. All areas of the pulp have equal blood flow
- d. Pulp horn of the pulp
13. Sodium hypochlorite (NaOCl) has the advantage over other root canal washing solutions because of which of the following?
- a. Dissolving necrotic tissue
 - b. Antibacterial properties
 - c. Dissolving vital tissue
 - d. a and b
 - e. All of the above
- e. All of the above
14. Theroodynamic theory is the most accepted theory, and it states the movement of fluid in the dentinal tubules triggers nerve endings.
- a. Both statements are true.
 - b. First statement is true, second statement is false.
 - c. First statement is false, second statement is true.
 - d. Both statements are false.
- b. First statement is true, second statement is false.
15. Which of the following conditions do not need root canal therapy (extraction)?
- a. Acute apical periodontitis
 - b. Acute apical abscess
 - c. Chronic apical abscess
 - d. Reversible pulpitis
 - e. Irreversible pulpitis
- d. Reversible pulpitis
16. Which tooth is the most often perforated due to the mesial concavity?
- a. Maxillary first premolar
 - b. Maxillary second premolar
 - c. Mandibular first premolar
 - d. Mandibular second premolar
 - e. None of the above because a mesial concavity does not exist.
- c. Mandibular first premolar
17. A tooth which has internal resorption tests normal to thermal or electric pulp tests, but a pulpctomy is indicated to remove the blood supply to osteoclastic cells.
- a. Both statements are true.
 - b. First statement is true, second statement is false.
 - c. First statement is false, second statement is true.
 - d. Both statements are false.
- b. First statement is true, second statement is false.

18. Anachoresis is a negative attraction of blood-borne microorganisms to inflamed or necrotic tissue during bacteremia, so it can be a possible route for pulpal or periodontal infection.
- a. Both statements are true.
 b. First statement is true, second statement is false.
 c. First statement is false, second statement is true.
 d. Both statements are false.
19. Which of the following shapes does NOT match the cross-section of the instrument used for root canal preparation?
- a. Square - file
 b. S-shape - s-file
 c. Triangle - reamer
 d. Circle - Hedstrom
 e. All of the above are true
20. A 40 year old male presents to the CWUJ undergraduate clinic complaining of an excruciating toothache in which the pain "comes and goes" and keeps him up at night. Clinical exam reveals gross caries #30. The radiographs show only deep occlusal caries with no change in the periodontal tissues. There is a long lingering response to cold. No response to percussion or palpation. Your most likely diagnosis and treatment is:
- a. Reversible pulpitis - place a sedative dressing.
 b. Acute apical periodontitis - do RCT or extract.
 c. Irreversible pulpitis - do RCT or extract.
 d. Necrosis - do RCT or extract.
 e. Irreversible pulpitis - place or sedative dressing.
21. Recent studies have shown that the Human Immunodeficiency Virus (HIV) to be in high concentrations in the pulpal tissue of the tooth as compared to other body tissues.
- a. True
 b. False
22. When antibiotic therapy is indicated before, during, or after root canal treatment, the drug of choice is:
- a. Clindamycin.
 b. Erythromycin.
 c. Penicillin.
 d. Tetracycline.
23. The person(s) who showed the significance that the role of bacteria played in pulpal pathology and in endodontics is/are:
- a. Dr. Marley.
 b. E. Ronald Wright.
 c. Monika Leachley.
 d. Hira from Paris.
 e. Kabanowski et al.

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30. Which immune system cells are normal inhabitants of the dental pulp?
1. Red blood cells
 2. Macrophages
 3. Fibroblasts
 4. T-lymphocytes
 5. Dendritic cells
- a. 1, 2, and 3
 b. 2, 3, and 4
 c. 3, 4, and 5
 d. 1, 2, and 4
 e. 2, 4, and 5
31. Endodontic emergencies are caused by all of the following EXCEPT:
- a. Pathosis in the pulp
 b. Periapical inflammation
 c. Restoring a tooth immediately after endodontic therapy
 d. Trauma
32. Which of the following is an absolute contraindication for endodontic treatment?
- a. Rheumatic fever
 b. Heart disease.
 c. Diabetes.
 d. Periodontitis.
 e. None of the above.
33. Internal resorption in a tooth may reduce the prognosis of the endodontic treatment, and therefore extraction is recommended in these cases.
- a. Both statements are true
 b. Both statements are false
 c. First statement is true but the second statement is false.
 d. First statement is false but the second statement is true.
34. Which is the intrapulpal medication of choice in endodontic therapy?
- a. A steroid preparation
 b. Cresatin
 c. Furazolidone
 d. Calcium hydroxide
35. Emergency treatment of a painful irreversible pulpitis constitutes:
- a. Total extirpation of the pulp
 b. Sedative dressing with IRI
 c. Partial pulpectomy
 d. Pulpotomy

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24. A patient complains of pain of three days' duration on the left side of the face, which the patient relates is dull and constant. The patient notes the pain increases on positional changes such as sleeping flat when lying on the left side. The most likely diagnosis is:
- a. Myocardial infection.
 b. Maxillary sinusitis.
 c. Atypical facial pain.
 d. Irreversible pulpitis.
 e. Trigeminal neuralgia.
25. When a patient complains of severe pain that cannot be localized:
- a. The pain is most likely parodontal in origin and likely to persist even when the necrotic pulp is removed. Treatment procedures should be delayed and the condition managed with analgesic medications.
 b. The cause is most likely non-odontogenic in origin.
 c. Selective administration of local anesthetics can lead to a definitive diagnosis.
 d. The pulp of more than one tooth will be involved and the pathology produces a synergistic hyperalgesia response within the central nervous system.
26. Which of the following is true with regard to reversible pulpitis?
- a. Pain is not spontaneous.
 b. Normal to percussion.
 c. Treatment is LRAL or permanent filling.
 d. Pain subsides after stimulus is removed.
 e. All of the above are true.
27. Which of the below bacteria was NOT associated with acute apical abscesses?
- a. Prevotella
 b. Porphyromonas glyngivalis
 c. Porphyromonas anaerobialis
 d. Streptococcus mutans
 e. Peptostreptococcus
28. The predominant cell type involved with acute inflammation is:
- a. Plasma cells.
 b. Lymphocytes.
 c. Macrophages.
 d. Polymorphonuclear leukocytes.
29. During the formation and growth of pulp, unmyelinated sensory nerve and autonomic (sympathetic) sympathetic nerves grow into pulpal tissue. There is no evidence to date that unmyelinated sensory nerves can be found at that time.
- a. Both statements are true.
 b. First statement is true, second statement is false.
 c. First statement is false, second statement is true.
 d. Both statements are false.

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36. What is the maximum total daily dose of Naproxen for an ASA I (normal/healthy) patient with no known allergy to Naproxen?
- a. 800 mg
 b. 2400 mg
 c. 1000 mg
 d. 3200 mg
 e. 3000 mg
37. Which conditions warrant the use of systemic antibiotics?
- a. Swelling associated with fever
 b. Painful lymph node enlargement
 c. Rapidly spreading diffuse swelling
 d. All of the above
38. Which of the following dental tissues contains the highest amount of inorganic content?
- a. Pulp
 b. Enamel
 c. Dentin
 d. Cementum
39. All of the following are types of Dentin EXCEPT:
- a. Mantle
 b. Peritubular
 c. Reparative
 d. Interglobular
 e. Lamellar
40. Dentinal tubules in an endodontically-treated tooth are permeable to ions, molecules, tissue fluids, even bacteria?
- a. True
 b. False
41. Which cells are believed to participate in the immuno-surveillance of the pulp?
- a. Macrophages
 b. Lymphocytes
 c. Dendritic cells
 d. a and c
 e. all the above

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8/20
10/17

42. Which of the following structures increase with age of the pulp?
1. Size of the pulp space
 2. Number of cells
 3. Collagen fibers
 4. Calcifications
 5. Nerves and vessels
- a. 1, 2 and 4
b. 1, 2 and 5
c. 3 and 4
d. 1 and 3
43. Which of the following is the least effective in diagnosing a patient with C.T.S?
- a. Radiographs
 - b. Bite test
 - c. Transillumination
 - d. Staining
44. Whether it not necessary for the spread of bacteria in caries. Heavy fusion and distal fluid provide the advancement?
- a. Both statements are true
 - b. Both statements are false
 - c. First statement is true but the second statement is false.
 - d. First statement is false but the second statement is true.
45. Where can the second mesio-buccal canal (M2) be found in a first maxillary molar?
- a. Between the mesio-buccal (M1) and distal canals between the distal and palatal canals
 - b. Between the M1 and Palatal, underneath the mesial marginal ridge.
 - c. No M2 found in first maxillary molars.
 - d. Underneath the distal marginal ridge, next to the palatal canal.
46. E.P.T. in Endodontics, commonly stands for what?
- a. Endodontic pulp tester
 - b. Electric pulp tester
 - c. Emergency pulp treatment
 - d. Experimental pulp tester
47. In Endodontics, a 311 and a DG-16 perform what?
- a. Remove decay and stain pulpal floor
 - b. Help in initial access cavity preparation
 - c. Test tooth for diagnosis
 - d. Remove caries and locate canal orifices
 - e. Oburation and condensation

- For questions 48 through 50, match the diagnoses with the most appropriate diagnostic test.
48. Irreversible pulpitis
49. Chronic apical abscess
50. Acute apical periodontitis
51. What allows the faster conduction of impulses by the A delta fibers as opposed to C fibers?
- a. Larger diameter and presence of myelin sheath around A delta fibers
 - b. Abundance of A delta fibers.
 - c. The fragile nature of C fibers.
 - d. All of the above
52. No response to heat or cold
53. Responds possible with extreme pain to thermal stimuli.
54. Pain on percussion and possibly palpation.
55. Responds normally to thermal stimuli.
56. No response to thermal stimuli or percussion tests.

Case Western Reserve University
School of Dentistry
Department of Endodontics

ENDODONTICS 6248
MIDTERM EXAMINATION
TUESDAY, FEBRUARY 24, 1998

16 Repeat

INSTRUCTIONS:

Using a #2 pencil, shade in the correct letter on the computer answer sheet provided. There is only one correct answer per question. Be sure your answer sheet has your ID number and your name on it.

1. The primary etiologic agent involved with pulpal pathology is:
- a. Thermal.
 - b. Mechanical.
 - c. Microbial.
 - d. Chemical.
 - e. All of the above.
2. The predominant cell type involved with acute inflammation is:
- a. Plasma cells.
 - b. Lymphocytes.
 - c. Macrophages.
 - d. Polymorphonuclear leukocytes.
3. According to the American Heart Association (1997), the recommended SBE prophylaxis for the non-penicillin allergic patient is:
- a. 3.0 g of amoxicillin 1 hr. before treatment, then 1.5 g after the initial dose.
 - b. Seven Filinastone vitamins 1 hr. before treatment.
 - c. 600 mg clindamycin 2 hr. before treatment.
 - d. 2.0 g of amoxicillin 1 hr. before treatment.
 - e. 600 mg azithromycin 1 hr. before treatment.
4. A 35 year old African American female presents to the CWRU undergraduate dental clinic for a routine examination. Periapical radiographs of the lower incisors reveals periapical radiolucencies teeth #23, #24, #25, #26. There is no history of pain, no history of trauma, periodontal disease or decay. These teeth test vital. Your most likely diagnosis and treatment of #23 to #26 is:
- a. Chronic apical periodontitis - root canal therapy.
 - b. Periapical cement dysplasia - root canal therapy.
 - c. Chronic apical periodontitis - extract.
 - d. Periapical cement dysplasia - do nothing.
 - e. Multiple periapical cysts - root canal therapy.
5. The characteristic clinical finding for a chronic apical abscess is:
- a. Fluctu.
 - b. Dense radiopacity.
 - c. Pain.
 - d. Swelling percussion sensitivity (pain upon percussion).

6. A 40 year old male presents to the DWRU undergraduate clinic complaining of an erupting toothache in which the pain "comes and goes" and keeps him up at night. Clinical exam reveals gross caries #30. The radiographs show only deep occlusal caries with no change in the periodontal tissues. There is a long lingering response to cold. No response to percussion or palpation. Your most likely diagnosis and treatment is:
- Reversible pulpitis - place a selective dressing.
 - Acute apical periodontitis - do RCT or extract.
 - Irreversible pulpitis - do RCT or extract.
 - Necrosis - do RCT or extract.
 - Irreversible pulpitis - place or sedative dressing.
7. A common histologic change in the pulp in response to moderately deep dentin caries is:
- Chronic inflammation.
 - Acute inflammation.
 - Vasocostriction.
 - Increased number of odontoblasts.
8. Which of the following is true regarding cracked-tooth syndrome?
- The most common cause for a cracked tooth is a masticatory accident (i.e., biting into hard candy).
 - Fissures or cracks are seldom seen on radiographs.
 - Long, isolated narrow periodontal pocketing may be found with a long-standing crack.
 - Pain and pressure may occur while biting pressure is released.
 - All of the above.
9. Recent studies have shown that the Human Immunodeficiency Virus (HIV) to be in high concentrations in the pulpal tissue of the tooth as compared to other body tissues.
- True
 - False
10. The irrigating solution of choice in endodontics is:
- Water.
 - Molten Golden.
 - Sodium hypochlorite.
 - Calcium hydroxide.
 - EFTA.

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16. The person(s) who showed the significance that the role of bacteria played in pulpal pathology and in endodontics is(are):
- Dr. Marley.
 - E. Ronald Wright.
 - Morika Leminsky.
 - None from parts.
 - Kakahashi et al.
17. The dental pulp is derived from which of the following cells?
- Odontoblasts
 - Fibroblasts
 - Dendritic cell
 - Neural crest cell
18. What is the correct sequence of tooth development with the correct chronological time?
- Bud stage (5 weeks), cap stage (8 weeks), bell stage (14 weeks)
 - Bud stage (7 weeks), cap stage (14 weeks), bell stage (24 weeks)
 - Bud stage (5 weeks), cap stage (8 weeks), bud stage (14 weeks)
 - Bud stage (7 weeks), cap stage (14 weeks), bud stage (24 weeks)
19. The cells of inner enamel epithelium and outer enamel epithelium make up the cervical loop which proliferates to give rise to what structure?
- Dental papilla
 - Dental follicle
 - Hertwig's root sheath
 - None of the above
20. Reparative dentin is also known as:
- Primary dentin
 - Secondary dentin
 - Tertiary dentin
 - Pre-dentin
 - Mantle dentin
21. Dentine tubules diverge from the pulp to the root and enamel surface.
- True
 - False

11. Studies have demonstrated a correlation between clinical and radiographic sign and symptoms of periodontal pathology and the presence of:
- Streptococcus mutans*.
 - Bacteroides matrogens*.
 - Staphylococcus aureus*.
 - No specific microorganisms.
12. The intracanal medication that has the best potential for effectiveness as an antimicrobial agent sealed in the canal is:
- Formocresol.
 - 5.25% sodium hypochlorite.
 - Stearic acid.
 - Calcium hydroxide.
13. Long-term administration of clindamycin is contraindicated because of the risk of developing:
- Severe gastrointestinal condition.
 - Urticaria.
 - Photosensitivity.
 - Hypersensitivity.
14. When antibiotic therapy is indicated before, during, or after root canal treatment, the drug of choice is:
- Clindamycin.
 - Erythromycin.
 - Penicillin.
 - Metrizolone.
15. The properties of sodium hypochlorite include all of the following except:
- Antibacterial.
 - Dissolves vital tissue.
 - Removes the inorganic component from the smear layer.
 - Dissolves non-vital tissue.
 - Lubrication.

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22. Which junction is a pathway for electrical excitation?
- Tight junction
 - Spot junction
 - Gap junction
 - All of the above
 - None of the above
23. During a cavity preparation, you injure an odontoblast. Where will the undifferentiated mesenchymal cells come from?
- Odontoblast layer
 - Cell poor zone
 - Cell rich zone
 - Pulp proper
 - None of the above
24. Which cells have the ability to differentiate into odontoblasts?
- Lymphocytes
 - Macrophages
 - Fibroblasts
 - Dendritic cells
 - Meat cells
25. What is the function of the pulp?
- Formation of dentin
 - Protective
 - Nutritive
 - Sensory
 - All of the above
26. Where is the blood flow in the region of the pulp greatest?
- Radiolar portion of the pulp
 - Coronal portion of the pulp
 - Cervical portion of the pulp
 - Pulp horn of the pulp
 - All areas of the pulp have equal blood flow
27. The blood flow in the pulp is lower than in skeletal muscle.
- True
 - False

28. Which of the following theories of pulpal innervation is the most popular and accepted?
- Direct innervation theory
 - Odontoblastic injury theory
 - Hydrodynamic theory
 - All of the above are equally accepted
29. In the dental pulp, which nerve is responsible for sharp pricking pain?
- A-delta
 - B-delta
 - C-delta
 - C-fibers
 - None of the above
30. At what rate is reparative dentin laid down?
- 0.4 microns/day
 - 4.0 microns/day
 - 40 microns/day
 - 400 microns/day
31. Electric pulp tester tends to marry false positive and false negative results.
- True
 - False
32. Which of the following is true of ultrasonic and sonic instruments?
- Ultrasonic system is powered by compressed air.
 - Sonic systems produce vibrations above the audible range.
 - Ultrasonic systems produce vibrations above the audible range.
 - Sonic system is powered by electric currents.
33. What is the material used to obturate the cavity after instrumentation at CWRU?
- Broken file
 - Silver points
 - Quila patches
 - H-2
 - None of the above

Case Western Reserve University
School of Dentistry
Department of Endodontics

ENDODONTICS DEBID 4348
FINAL EXAMINATION
TUESDAY, APRIL 23, 2008

INSTRUCTIONS:

Using a #2 pencil, circle the correct letter on the computer answer sheet provided. There is only one correct answer per question. Be sure your answer sheet has your ID, number and your name on it.

34. Which tooth is the longest in the human dentition?
- Maxillary central incisor
 - Maxillary lateral incisor
 - Maxillary canine
 - Mandibular central incisor
 - Mandibular canine
35. Which tooth is most often perforated due to the mesial concavity?
- Maxillary first premolar
 - Maxillary second premolar
 - Maxillary first molar
 - Maxillary second molar
36. Which tooth has the greatest failure rate following endodontic therapy?
- Maxillary first premolar
 - Maxillary second premolar
 - Maxillary first molar
 - Maxillary second molar
37. Mandibular anterior teeth have two canals what percent of the time?
- 100%
 - 80-70%
 - 30-40%
 - 10-20%
38. The mandibular first premolar is the most often perforated tooth due to the mesial cavity.
- True
 - False
39. The distal root of a mandibular first molar has two canals what percent of the time?
- 10%
 - 30%
 - 60%
 - 90%
 - 100%

1. Which of the following are signs of a failing root canal?
- A persistent radiolucency that is larger at 6 months.
 - A sinus tract is associated with the treated tooth.
 - There is persistent pain.
 - A, B, C.
 - A, B, C.
2. Which of the following could be considered indications for antibiotics during endodontic treatment?
- Lymphadenopathy.
 - Rapidly progressing infection.
 - Elevated temperature.
 - Immunocompromised patient.
 - All of the above.
3. Generally, which of the following are true?
- Initial root canal treatment generally has a better prognosis than retreatment.
 - Diagnosis is a major factor determining prognosis.
 - Vital teeth have a better prognosis than necrotic teeth.
 - A, B, C.
 - None of these are true.
4. Benefits of irrigation and drainage include:
- Release of pressure.
 - Increased circulation.
 - Increased oxygen.
 - Decreased bacteria.
 - All of the above.
5. For difficult to irrigate mandibular molars (not teeth):
- Make a large access opening and then give an intracanal injection.
 - These teeth never require root canal treatment, just analgesia.
 - If an intracanal injection is required, it must be given with adequate pressure.
 - C and E.
 - It is helpful to give an intracanal injection through a small opening.
6. Regarding mandibular molars:
- Some may have 2, 3, 4, or 5 canals.
 - It is possible to overfill or overextend the root canal filling.
 - The working length may be determined in some cases by using paper points.
 - Vital pulp therapy is the filling material of choice, silver cements are more opaque.
 - All of the above.
7. The fourth canal is often found in:
- The mesiodistal root of the maxillary first molar.
 - The mesial root of the maxillary first premolar.
 - The palatal root of the maxillary first molar.
 - The distobuccal root of the maxillary first molar.

36. As a result of coronal blockage, all of the following may occur EXCEPT:
- A. Large formation.
 - B. Translocation.
 - C. Perforation.
 - D. Vertical fracture.
37. All of the following may result in the gutta percha master cone not reaching the working length EXCEPT:
- A. Gutta percha cone selected is too big.
 - B. Backspace is correct.
 - C. Gutta percha cone selected is too small.
 - D. Gutta percha cone bent while inserting into canal.
38. A 45° occlusal table is seen in:
- A. Maxillary first premolar.
 - B. Maxillary second premolar.
 - C. Mandibular first premolar.
 - D. Mandibular second premolar.
39. A perforation during access preparation is more likely in which area?
- A. Maxillary molar on the distal.
 - B. Maxillary anterior on the lingual.
 - C. Mandibular anterior on the lingual.
 - D. Maxillary premolar on the mesial at the CEJ.
40. Which premolar has 2 roots?
- A. Maxillary first premolar.
 - B. Maxillary second premolar.
 - C. Mandibular first premolar.
 - D. Mandibular second premolar.

41. What is the taper (decrease in diameter from tip to handle) on most hand files used for cleaning and shaping root canals?
- a. 0.2 mm/mm of file length
 - b. 0.01 mm/mm of file length
 - c. 0.002 mm/mm of file length
 - d. 2.0 mm/mm of file length
42. Keeping in mind your answers for the previous two questions, what would the value of "D" be for a #45 file in?
- a. 0.5 mm
 - b. 0.3 mm
 - c. 0.15 mm
 - d. 0.80 mm
43. Which of the following hand instruments has the greatest chance to separate (break) within the canal cleaning and shaping?
- a. Hedstrom file
 - b. K-File
 - c. Raper
 - d. S-Bar file
44. Lateral compaction has a tapered tip. They can be used to vertically compact gutta percha in canals.
- a. First statement is true, but second statement is false.
 - b. First statement is false, but second statement is true.
 - c. Both statements are true.
 - d. Both statements are false.
45. Lateral condensation of gutta percha does not require sealer. The technique is as good as the warm vertical compaction technique.
- a. First statement is true, but second statement is false.
 - b. First statement is false, but second statement is true.
 - c. Both statements are true.
 - d. Both statements are false.
46. What is the near-ideal shape of the access for a maxillary premolar?
- a. Round
 - b. Oval
 - c. Trapezoidal
 - d. Triangular
47. What is the near-ideal shape of the access for a maxillary incisor?
- a. Round
 - b. Oval
 - c. Trapezoidal
 - d. Triangular

1. What is the proper sequence for biomechanical preparation?
- A. Filing, recapitulation, then irrigation
 - B. Recapitulation, filing then irrigation
 - C. Filing, irrigation then recapitulation
 - D. Filing then irrigation
2. The canals are kept moist during biomechanical preparation for: choose the most appropriate answer for selected path(s).
- A. Antimicrobial action.
 - B. Better tactile sensation.
 - C. Lubrication.
 - D. Thrombus dissolution.
3. What is the significance of filing 0.5 mm from the radiographic apex?
- A. Distance between apical foramen and mesial foramen
 - B. Distance between apical curvature and apical foramen
 - C. Distance between midline and apical one-third of canal
 - D. Distance apical foramen from any apical pathology
4. What is a DG16 and when is it used?
- A. Endodontic excavator used to remove debris from pulpal floor
 - B. Endodontic excavator used to smooth pulpy chamber
 - C. Endodontic explorer used to remove debris from pulpal floor
 - D. Endodontic explorer used to locate canal orifices on pulpal floor
5. What is a 38, and when is it used?
- A. Endodontic excavator used to remove debris from pulpal floor
 - B. Endodontic excavator used to smooth pulpy chamber
 - C. Endodontic explorer used to remove debris from pulpal floor
 - D. Endodontic explorer used to locate canal orifices on pulpal floor
6. What is the Endo-Z bar and when is it used?
- A. Flame-shaped bar to gain straight line access
 - B. Round bar used to access the pulpy chamber
 - C. Straight flame diamond used to flatten the pulpal floor
 - D. Self-wed carbide bar used to smooth the pulpy chamber
7. According to ISO standards, what does "D-4" stand for?
- A. Fourth file used in canal
 - B. Diameter of the at tip
 - C. Diameter of file 4.0 mm from handle
 - D. Diameter of file 4.0 mm from the tip

15. What is the proper bur angulation for initial incisor access?
- a. 45° to the long axis of the tooth
 - b. 60° to the long axis of the tooth
 - c. 90° to the long axis of the tooth
 - d. 30° to the long axis of the tooth
16. A completed access includes all of the following EXCEPT:
- A. Straight-line access to canal.
 - B. Duvalling of pulpy chamber.
 - C. Flattening of pulpal floor.
 - D. Removal of any debris in pulpy chamber.
17. Apart from normal tooth length values for teeth, what is the first clue to the approximate working length for any tooth?
- a. Working length X-ray
 - b. Mastercone X-ray
 - c. Pre-operative X-ray
 - d. Bitewing
18. What is the best clue to the approximate depth of pulpy chamber for endodontic therapy?
- a. Periapical X-ray film
 - b. Angled X-ray film
 - c. Occlusal film
 - d. Bitewing film
19. Step-back preparation facilitates all of the following EXCEPT:
- a. Spreader penetration to apical one-third of canal.
 - b. Continuous taper to prepared canal.
 - c. Deeper penetration of accessory curves alongside the master cone.
 - d. Removal of ledges from canal walls.
20. What does MAF stand for?
- a. Master Apical File
 - b. Master Cone and Accessory File
 - c. Master Apical File
 - d. No term such as MAF is used in Endodontics
21. Circumferential filing after step-back preparation may be done with:
- a. Any file bigger than the master apical file.
 - b. Only with a #10 file.
 - c. Any file smaller than the master apical file.
 - d. None of the above.
22. To avoid spreader tracks:
- a. Place spreader on different sides of the canal each time.
 - b. Use an accessory gutta percha point that is bigger than the spreader.

23. To avoid lodging, transporting and blocking out the canal:
1. Force a large file to working length first thing.
 2. Do not flare the coronal portion of the canal.
 3. Prepare the coronal two-thirds of the canal before instrumenting the apical one-third.
 4. Irrigate and recapitulate with a #10 file after each instrument.
- a. 1, 3, 4
b. 2, 3, 4
c. 2, 4
d. 3, 4
e. None of the above
24. Straight line access is important:
- a. Only in the posterior teeth.
b. Only in the anterior teeth.
c. Only in small canals.
d. None of the above.
25. The most common area perforated on anterior teeth is through the:
- a. Labial/occlusal surface.
b. Mesial.
c. Distal.
d. Palatal.
26. Fiber as opposed to reamer can be used in which of the following ways?
- a. Reaming
b. Watch-winding
c. Balanced forces
d. Quarter turn pull
e. All of the above
27. A standard #30 K file with a 0.02 taper would be what diameter at D4?
- a. 0.20 mm
b. 0.40 mm
c. 0.38 mm
d. 0.36 mm
e. None of the above
28. Which of the following is not a property of sodium hypochlorite?
- a. Tissue dissolution
b. Antimicrobial
c. Eliminates pulpal hemorrhage
d. Anti-inflammatory

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35. What is the proper liquid to powder ratio of BOTH sealers?
- a. 1 powder scoop/3 liquid drops
b. 2:1
c. 1:1
d. 1:2
36. Top-back fit of the master gutta percha cone means:
- a. Slight resistance to removal from the canal.
b. Covering the master cone with sealer.
c. Fitting the master cone with a spreader.
d. Using several accessory cones.
37. A root canal plugger is used in lateral condensation on:
1. Fit accessory cones.
 2. Condense the master cone in the apical third.
 3. Apically condense the warm gutta percha at the orifice of the canal.
- a. 1, 3
b. 2, 3
c. 1, 2
d. 2 only
e. 3 only
38. Which one of the following instruments are used to provide straight-line access:
1. #2 round bur
 2. #4 round bur
 3. #56 fissure bur
 4. Safe-end bur
- a. 1, 3
b. 2, 4
c. 2 only
d. 4 only
e. None of the above
39. NaOCl is used for the following reasons:
1. Lubrication.
 2. Removing the organic debris.
 3. Disinfection of the root canal.
- a. 1, 3
b. 2, 4
c. 3 only
d. All of the above
e. None of the above
40. The maxillary and mandibular molars never have 1 canal.
- a. True
b. False

29. The cross-section of a reamer is _____ or _____.
1. Triangular
 2. Cuboidal
 3. Square
 4. Rhomboidal
- a. 1, 2
b. 2, 3
c. 1, 4
d. 2, 4
e. None of the above
30. In lateral condensation, gutta percha is molded in one direction so:
1. Add to the placement of additional lateral cones.
 2. Avoid fatigue on the spreader.
 3. Give more access and visibility to the canal.
 4. Avoid extruding sealer through the apex.
- a. 1, 2, 3
b. 2, 3
c. 1, 4
d. 1, 3
e. All of the above
31. To avoid heterogeneously blocking canals:
- a. Prepare the canals dry for better visibility.
b. Irrigate frequently with NaOCl.
c. Do not recapitulate in several breaking instruments.
d. Step-back.
32. The largest and most easily located root canal on the mandibular molar is the:
- a. Mesial/occlusal
b. Distal
c. Mesial/buccal
d. Lingual/mesial
33. The outline taper for the maxillary first premolar is:
- a. Triangular.
b. Rectangular.
c. Oval.
d. Round.
34. What is the major component of gutta percha?
- a. Barbit vacillate (C-PT).
b. Highly refined natural gutta percha (a-b-1).
c. Zinc silicate (a-PT).
d. Zinc silicate (C-PT).

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41. The lengths of the files are available in the following sizes:
1. 21 mm.
 2. 12 mm.
 3. 17 mm.
 4. 31 mm.
- a. 1, 2, 3
b. 2, 3, 4
c. 1, 3, 4
d. 1, 4
e. All of the above
42. What is the clinical designation of the endodontic explorer?
- a. #31L
b. Woodson #2
c. DG18
d. Crowder 41-L
43. When establishing straight-line access to the root canal of a maxillary central incisor, the design should be:
- a. The external outline should be placed on the lingual surface in the middle third of the tooth both mesiodistally and circumferentially.
 - b. The center of the external outline should enter through the cuspation 45° from the palatal.
 - c. It doesn't matter as long as you don't perforate the pulp.
 - d. The outline should be off-center and more towards the distal.
44. What percentage of the time are extra roots and canals encountered in the mandibular premolar?
- a. 15-20%
b. 52-30%
c. 43-50%
d. 60-70%
45. What is the average length of a maxillary canine?
- a. 28.2 mm
b. 23 mm
c. 27 mm
d. 26.5 mm
46. The bur of choice for the majority of endodontic cases is a _____ its primary use is to remove the roof of all pulp chambers. Entry into the pulp chamber can also be gained with this bur.
- a. #2 round carbide bur
b. #4 round carbide bur
c. #4 round diamond bur
d. A carbide fissure bur
e. Endo Z bur

47. The endodontic file that has a tapered round shaft of steel wire with many cutting teeth cut out at various intervals over the entire shaft is:
- "H"-type file.
 - Reamer.
 - Hedstrom file.
 - Broach.
 - Profile.
48. Another name for the endodontic explorer is:
- DC12
 - #111
 - Woodson #2
 - #161
 - DC16
49. You just took two periapical films of #14. One was taken "straight on" and one was angled horizontally. In the "straight on" view, the palatal root is seen directly between the M and D roots. In the other film, the D8 root is covering the palatal root. Where was the X-ray head relative to the "straight on" view when the radiograph was taken?
- Mesial
 - Distal
 - Inferior
 - Superior
50. What is the average length of the first mandibular molar?
- 22-23 mm
 - 19 mm
 - 16-18 mm
 - 24 mm
51. Which of the following statements is true in a maxillary molar access?
- A major portion of the pulp chamber access preparation should be mesial to the transverse ridge.
 - The occlusal form of the occlusal opening should be triangular with the base toward the occlusal.
 - The initial opening should be in the central pit area progressing deep until the pulp chamber is located.
 - All of the above are true.
52. What is the instrument of choice for the initial entry into the canal?
- Endodontic spreader
 - #2 Gates Glidden drill
 - A 21 mm #20 file
 - Medium-flute gettes parho cone

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Case Western Reserve University
School of Dentistry
Department of Endodontics

ENDODONTICS DEND #248
FINAL EXAMINATION
WEDNESDAY, APRIL 26, 2000

Please compare answers with your notes

INSTRUCTIONS

Using a #2 pencil, shade in the correct letter on the computer answer sheet provided. There is only one correct answer per question. Be sure your answer sheet has your ID, number and your name on it.

53. As X-ray beam aimed from the mesial to the distal of a mandibular molar will show the M8 canal:
- To be the most mesial canal on the film.
 - To be between the M1 and D1 canals on the film.
 - To be the most distal canal on the film.
 - Position to vary based on the length of the canal.
54. The properties of calcium hydroxide include:
- Anti-fungal.
 - Anti-inflammatory.
 - Hypocytotoxic.
 - Anti-bacterial.
 - All of the above.
55. The following is true regarding one appointment endodontic treatment:
- It will be most successful in vital cases.
 - It should not be performed routinely for retreatment cases.
 - It should not be performed routinely in cases of acute apical abscess.
 - a and c.
 - All of the above.
56. The following is true regarding sodium hypochlorite:
- It can dissolve pulp tissue.
 - It can kill bacteria.
 - In some cases, it can be replaced by chlorhexidine (Purdend).
 - It can be used full strength 1.25%, but can also be diluted.
 - All of the above.
57. Regarding mandibular molars:
- They usually have two roots, but three canals.
 - The easiest canal to locate is usually the distal canal.
 - If you locate a canal distal to the central groove on the distal aspect of the tooth, chances are there is also a distobuccal canal.
 - Just a and b are true.
 - All of the above are true.
58. Given a four-canal mandibular molar, if a radiograph is exposed with the X-ray tube aiming from the mesial to the distal, canals shown on the radiograph from mesial to distal would be:
- DL, DB, ML, ME
 - DL, DL, ML, ML
 - ML, ML, DL, DL
 - ME, ML, DL, DL
 - There would be no way to tell which canal was which.

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1. The pulp chamber access form in a maxillary incisor tooth is created in which of the following ways?
- By carefully designing the triangular form on the lingual enamel then slowly removing all enamel and then underlying dentin until the pulp chamber is reached. The pulp chamber should then be continuous with the enamel and dentin preparation.
 - By designing an oval triangular form with its base toward the cervical area then entering the pulp chamber and completing all lateral extensions until the desired form is achieved.
 - By entering through the enamel and dentin directly into the pulp chamber at its greatest breadth and then by removing all remaining overlying roof dentin creating the optimum form for that particular tooth.
 - By removing overlying enamel and dentin with a #6 round bur, thus assuring that the preparation will not be overextended, and that it will occupy the correct proportion of the tooth.
 - By limiting the access triangular form to the central half of the tooth, thus preserving maximum coronal tooth structure and maintaining optimum lateral crown strength.
2. Which of the following instruments is formed from a three-sided piece of metal?
- Reamer
 - File
 - Broach
 - Hedstrom file
 - All of the above
3. What is the optimum length for a reamer or file for most molar endodontics especially mesial root canals?
- 20 mm
 - 21 mm
 - 22 mm
 - 24 mm
 - 23 mm
4. The apical cradle or apical seat is created in which of the following areas of the tooth?
- At the pulp horn
 - At the cementoenamel junction
 - At the dentinocemental junction
 - A half millimeter from the apex of the root usually in dentin
 - Carefully right at, but not through, the radiographic apex
5. What is a disadvantage in the utilization of sodium hypochlorite as an endodontic treatment solution?
- Its high cost
 - Tendency to cause tooth discoloration
 - Its ability to dissolve debris
 - Its short shelf life
 - All of the above

6. The largest part of a completed pulp cavity preparation is located where on the tooth?
- At the outer enamel margin on the tooth crown
 - At the dentin/enamel junction
 - At the cervical area of the tooth
 - At the area which includes all pulp horns
 - At the coronal most part of the root canal
7. Which instrument listed below has the greatest depth cutting power in root canal treatment?
- Reamer
 - File
 - Broach
 - Explorer
 - None of the above
8. Which instrument is used to enlarge small diameter root canals in the early phase of root canal enlargement?
- Reamer
 - File
 - Broach
 - Explorer
 - None of the above
9. Which of the instruments listed below is used in the early phase of root canal treatment to remove all tissue and/or debris to the apex in all canals?
- Reamer
 - File
 - Broach
 - Explorer
 - None of the above
10. Which of the below always has a single root canal?
- Mandibular first premolar
 - Mandibular second premolar
 - Mandibular first molar
 - Mandibular lateral incisor
 - None of the above
11. In an adequately filled root canal, the sealer should be confined only to which of the following areas?
- The pulp cavity
 - The apical third
 - The root canal
 - The apical root
 - The pulp chamber

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17. A common error in pulp cavity access preparations is:
- Access opening too small or too large.
 - Using a #2 bur.
 - Incomplete removal of pulp chamber roof.
 - Removing roof of chamber from inside out.
- x: 2, 3, and 4
 b: 1, 2, and 4
 c: 2 and 3
 d: 1, 3, and 4
 e: All of the above
18. Ideal endodontic obturation has occurred when:
- The apex is completely and correctly sealed.
 - A hermetic seal is achieved at the apex and at the curve of the root canal.
 - Whenever the patient loses his acute symptoms.
 - When the pulp cavity is hermetically sealed.
 - When the sealer is placed in sufficient quantity to fill all empty spaces in the root canal.
19. The root canal of a canine when compared with that of a central incisor is which of the following?
- More difficult to locate because of the difference in crown form
 - Smaller in the mesiodistal aspect
 - Smaller in the buccolingual aspect
 - Always more radiopaque
 - Wider labiolingually
20. The tooth that most rarely displays two root canals is:
- Mandibular second bicuspids
 - Mandibular second molar
 - Mandibular lateral incisor
 - Mandibular first bicuspids
 - Mandibular central incisor
21. On a typical maxillary first molar, which root has the largest diameter?
- Mesiofacial root
 - Distobuccal root
 - Lingual root
 - Distolingual root
 - None of the above

12. The lingual root of a maxillary first molar usually possesses which of the following in the apical third area?
- A buccal hook
 - A lingual hook
 - A mesial hook
 - A distal hook
13. Which of the following instruments has the greatest resistance to separating during endodontic treatment?
- Reamer
 - File
 - Broach
 - Heat-treated file
14. Sodium hypochlorite is used in endodontic therapy for which of the following reasons?
- As a tissue solvent
 - As a lubricant
 - As an irrigating agent
 - For its bactericidal ability
 - All of the above
15. The instrument best suited for clearing pulp chambers and uncovering hidden root canals is which of the following?
- #11 L
 - Woodson #2
 - Endo explorer
 - #11-215
 - #4 round bur
16. In preparation for first root canal filling, porta percha cones must:
- Reach a point no more than 0.5 mm from the radiographic apex.
 - Closely approximate the lateral wall for the entire canal length.
 - Exhibit definite tug back.
 - Be heat treated to assure stability.
 - Be curved to closely resemble any existing curve found on the root.
- a: 1 and 2
 b: 1, 2, and 3
 c: 2, 3, and 4
 d: 1, 3, and 5

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22. Adequate biomechanical pulp cavity preparation is necessary to:
- Remove stubborn flasks.
 - Remove crypts such as debris or colonies of bacteria.
 - Create a space sealer to obturate.
 - Assure good apical fit of gutta percha.
 - Recognize minor canal curvatures.
- a: 1, 2, 3, and 4
 b: 1, 2, 3, and 5
 c: 1, 2, and 3
 d: 2, 3, and 4
 e: All answers are correct
23. A chronic problem in endodontic therapy is discoloration. A major cause is which of the following?
- Failure to clean the root canal
 - Internal darkening of enamel due to an increase in brittleness
 - Failure to prepare pulp chamber with a #4 round bur
 - Failure to remove sealer and gutta percha from pulp chamber
 - Increased age of the patient
24. The material of choice for fabrication of reamers and files used in our clinical endodontic treatment is:
- Carbon steel
 - Stainless steel
 - Stainless steel
 - Titanium
 - None of the above
25. The maxillary first molar root which exhibits the greatest length is:
- Mesiofacial root
 - Distobuccal root
 - Lingual root
 - Mesiolingual root
 - Distal root
26. Root canal sealer is most necessary for which of the following reasons?
- To aid in creation of a hermetic root canal seal
 - To fill all accessory canals which may cause eventual tissue breakdown and abscess formation
 - To close any spaces caused by discrepancies in master cone preparation
 - To ease placement of accessory cones
27. The cross-sectional area of a #6 file is:
- Square
 - Circular
 - Rectangle
 - Trapezoid

28. A measurement control X-ray should be taken by which of the following methods?
1. With the first instrument placed deep into the root canal
 2. With a large reamer or file in the canal after all debris has been removed from the root canal, thus eliminating the chance of inadvertently forcing contaminated material out of the apex
 3. With an adequately-sized instrument (initially visible on an X-ray) placed in a predetermined shortened point in the root canal
 4. With an accurate radiographic technique as possible to ensure least distortion of the root image
 5. With the reamer or file placed loosely into the tooth to prevent damage to apical area should that reamer pass through the apical opening.
- a. 1 only
b. 1 and 2
c. 2 and 3
d. 3 and 4
e. 4 and 5
29. It should be assumed that the maxillary first premolar has two root canals in which percentage of the time?
- a. 75%
b. 85%
c. 100%
d. 95%
e. 55%
30. Which of the below items cannot be ascertained from a pre-treatment X-ray?
- Presence of pulp chamber
 - Size of pulp chamber
 - Anatomy of the pulp cavity
 - Vitality of the pulp cavity
 - Presence of root canal or root canals
31. All biomechanical force on lateral walls with hand instruments should be directed in which of the following ways?
- Apically
 - Coronally
 - Laterally
 - Direction should be determined by individual tooth
 - None of the above
32. Which statement is true?
- To facilitate locating all of the root canals, care should be taken so that neither the chamber walls nor the chamber floor is disturbed during root removal
 - Disturbing the pulp chamber walls has no bearing on facilitating canal location
 - Disturbing the pulp chamber floor has no bearing on facilitating canal location
 - Only time and experience will allow one to locate canals easily
 - The actual root canal openings are usually very difficult to locate even with an ideal access

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33. The pulp chamber of the maxillary first bicuspid is shaped as follows:
- Extended with a slight distal inclination.
 - Flattened mesiodistally.
 - Flattened buccolingually.
 - Triangular with its base under the lingual cusp.
 - Triangular with its base under the buccal cusp.
34. The approach to the mesiobuccal canal in maxillary or mandibular molars should be from which direction?
- The distobuccal
 - The mesiobuccal
 - The mesiolingual
 - The distolingual
 - The cusp of cuspid
35. The major difference between the maxillary first and second bicuspid is:
- The first is wider buccolingually than the second.
 - The second is wider buccolingually than the first.
 - The first has wider root canal than the second.
 - The first has two canals in practically every case whereas the second has two canals in over 50% of the time.
 - The first is remarkable longer than the second in 75-80% of the time.
36. Sodium hypochlorite may be used in endodontics as a potent:
- Chelating agent.
 - Tissue solvent.
 - Anodyne dressing.
 - Osmotic agent.
 - All of the above.
37. The removal of the remnants of pulp tissue from the chamber is necessary in order to prevent:
- Pulpitis.
 - Cysts.
 - Perforations.
 - Discoloration.
 - Disrupting recalcifying glapphitis.
38. Access preparations for root canal treatment should be:
- As small as feasible to conserve tooth strength.
 - Confined to area where obvious destruction occurs.
 - Shaped carefully with a #55 inverted cone bur.
 - Extended to the full periphery of the pulp chamber.
 - Have only enough pulp chamber floor removed to create a flat floor.
- a. 1 and 5
b. 2 and 4
c. 1 and 2
d. 1 and 4

33. The difference(s) between a #25 reamer and a #25 file lies which of the below?
1. Strength
 2. Length
 3. Alloy composition
 4. Height of cutting blades
 5. Number of blades per millimeter
- a. 1, 2, and 4
b. 1, 2, and 5
c. 1, 4, and 5
d. 1 only
e. 5 only
34. When attempting to penetrate a narrow pulp canal with a root canal file, the instrument is:
1. Lubricated with EDTA or glycerin.
 2. Lubricated with 3% HCL.
 3. Rotated one-fourth turn clockwise with gentle apical pressure.
 4. Drawn back and forth through to etc.
 5. Rotated gently 360°.
- a. 1 and 2
b. 1 and 3
c. 1 and 5
d. 2 and 4
e. 2 and 5
35. The major cause of failure following root canal treatment, as far as the placement of the root filling is concerned, is:
- Underfilling the root canal.
 - Overextending the root canal.
 - Inadequate sealing of the root canal.
 - Inadequate sterilization of the root canal.
36. Irrigation of a pulp cavity is best achieved by:
- Flushing gently with a syringe placed loosely in the root canal.
 - Placing some fluid in the chamber with a dropper.
 - Always withdrawing the instrument in the solution, prior to inserting it into the canal.
 - Constant wiping of chamber with moistened cotton pellet.
 - Placing a fine needle in the apex and flushing with slight pressure.
37. Contaparch is:
- An artificial bacteriostatic plastic which may be sealed by pressure.
 - A pink hydrocarbon with thermoplastic qualities.
 - A compound which seals the root canal independent of the Malaya architecture.
 - A sterilized non-toxic mixture of butene gas and artificial coloring agents.
 - A refined waxlike form of Parafilm rubber trees.

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38. The solution of choice for pulp cavity irrigation is:
- Sodium hypochlorite.
 - Sodium hydroxide.
 - Hydrogen peroxide.
 - Hydrogen chloride.
39. Special care must be taken when enlarging a measured root canal for which of the following reasons:
1. To prevent coronal discoloration.
 2. To prevent discoloration.
 3. To prevent broken brackets.
 4. To prevent ledge formation.
 5. To prevent perforations.
- a. 1 and 5
b. 2 and 3
c. 4 and 5
d. 3 and 4
e. 3 and 5
40. The acceptable final size for any biomechanically treated tooth should be:
- 1.50 times its length in millimeters.
 - At least three times larger than the first instrument which met resistance.
 - Size #60 in mandibular second bicuspid.
 - 10 mm plus 5 mm arbitrarily selected for the measurement of the crown.
 - Larger for other cones than for gutta percha.
41. In a root canal opened to a size #50 reamer where there exists some residual necrotic tissue, the operator should do which of the following?
- Disolve the debris chemically
 - Change to a size #50 file
 - Remove debris with a large brush
 - Irrigate any bacteria contained in debris by placing a hermetic seal.
 - Keep on reaming
42. The root canal spreader creates pressure within the gutta percha water cone, thus causing the gutta percha to flow into minor root irregularities.
- Statement and reason both are true.
 - Statement is true; reason is false.
 - Statement and reason are both false.
 - Statement is false; reason is true.
43. The instrument which should not be used to place sealer in a root canal being finished is which of the below?
- Reamer
 - File
 - Brush