Choose the correct answer

1. What is the primary function of the pulp?
   A. Nutrition – provide blood supply to the dentin
   B. Formative – allow for the development of the dentin
   C. Protection – pain receptors provide a warning of impending injury

2. Pulpal Disease is frequently caused by:
   A. Overzealous crown preparation
   B. Traumatic Injury
   C. Periodontal Disease
   D. Extensive Caries
   E. All of the above

3. When speaking about pulpal disease or periapical abscess, we often speak about non-vital teeth. This is really a misnomer. The vital part of a tooth is really called the attachment apparatus and this consists of three elements. What are they?

4. The pulp has a limited ability to recover from inflammation. This is because:
   A. Young pulps consist mostly of fibrous tissue
   B. The pulp has a limited blood supply
   C. The bacterial flora in the oral cavity inhibits recovery
   D. The pulp has a limited ability to expand because of the surrounding tooth structure

5. Pulpal Disease proceeds in the following manner:
   A. Apically coronally
   B. Centrally in the pulp chamber and expands outward
   C. Coronally apically
   D. Randomly in the pulp chamber or canal

6. The electric pulp tester would be most helpful in the diagnosis of the following:
   A. Periodontal abscess
   B. Periapical abscess
   C. Cementoma
   D. All of the above

7. Access cavity preparation for endodontics in an upper anterior tooth should be:
   A. Round – no larger than 2mm diameter
   B. Round – larger than 2mm diameter
   C. Ovoid
   D. In the general shape of the clinical crown
8. When treating an upper anterior tooth in a young patient, once access preparation is complete, the first instrument to go into the canal itself should be:
   A. A long shank #2 bur to facilitate good straight line access
   B. A #20 file to obtain a measurement
   C. A small broach to remove pulpal tissue
   D. Any of the above

9. The proper shape for cleaning and shaping a canal is a continuously tapered funnel, widest at the coronal or incisal edge and narrowest at the apex. The use of which of the following will safely help to create this shape?
   A. A long shank #2 bur to help create a flare
   B. Gates Glidden Burs
   C. A long tapered diamond stone
   D. A serial stepback technique using k files
   E. Tapered rotary NiTi instruments

10. The most important elements of cleaning and shaping a canal are:
    A. Measurement control
    B. Removing all pulp tissue
    C. Flaring the canal to facilitate proper obturation
    D. Keeping a small apical profile
    E. All of the above

11. Which of the followings are the purposes of placing rubber dam in endodontic procedure?
    1. To provide aseptic operating field
    2. To assist patient's respiration
    3. To facilitate the compressibility of gutta percha used in root canal procedure
    4. To protect the patient from aspirating endodontic instruments such as files
       a. 1, 2
       b. 2, 3
       c. 1, 4
       d. 1, 2, 3, 4

12. Which of the followings are true in determining working length of root canal treatment?
    1. The working length should be at the radiographic apex.
    2. The working length is usually 0.5 or 1.0 mm short of the radiographic apex.
    3. Electronic Apex Locator can be a helpful clinical armamentarium in determining working length.
    4. Radiograph is the only consistent clinical method in working length determination
       a. 1, 2
       b. 2, 3
13. Which of the following statements are true in cleaning and shaping procedure of endodontic procedure?

1. Both hand files as well as rotary files can be used.
2. Rotary files are usually made with NiTi alloy and are used with electric motor at designated RPM set by the manufacturer.
3. NaOCl, EDTA (decalcifying agent), and Chlorhexidine are commonly used irrigants.
4. Cleaning and shaping process is to eliminate the cause of the root canal problems such as bacterial infection from root canal system.

a. 1
b. 1, 2

c. 1, 2, 3

d. 1, 2, 3, 4

14. Which of the material is the most widely used in modern endodontic procedure as intracanal medicament to control polymicrobial infection in the root canal space? (  )

1. Mixture of antibiotics (Penicillin, Bactrim, Streptomycin and Clindamycin)
2. Fromocresol
3. Calcium Hydroxide – Ca(OH)2
4. Cresatin

15. Which of the following statements are true in regards to root canal obturation (fill)?

1. To entomb surviving microorganisms
2. To prevent Influx of Apical Tissue Fluid
3. To prevent Coronal Leakage
4. To dissolve residual tissue debris

a. 1
b. 1, 2

c. 1, 2, 3

d. 1, 2, 3, 4

16. What is the major result published by Kakehashi et al in 1965?

1. The presence or absence of a microbil flora is the major determinant in the healing of exposed rodent pulps.
2. Severe inflammation in the periapical tissue was caused by "seepage of irritants into unfilled root canals".
3. Resorption of the dentin walls was a common finding when marked inflammatory changes were present in the ingrowing granulation tissue.
4. Overinstrumentation beyond the apex can cause profuse hemorrhage.
17. Choose the correct answer from the study "Painful Pulpitis" published in 1960 by Mitchell and Tarplee?
1. Teeth with painful pulpitis are vial, hyeprsensitive to applied heat and cold, and have pulp exposures that are usually detectable by a sharp explorer.
2. Such teeth always exhibit sensitivity to the percussion test.
3. Diagnosis by radiograph alone is nearly impossible.
4. Pulp inflammation is greatest immediately next to the pulp exposure.

A. 1
B. 1,2
C. 1,3
D. 1,3 and 4
E. All of the Above

18. How did Pineda and Kuttler investigate the 7,275 root canals?
1. Direct Observation
2. Direct observation with the aid of a microscope
3. Macroscopic sections
4. Filling and Decalcification
5. Roentgenographic Examination

19. What are the findings from Pineda and Kuttler's study published in 1972?
1. Only 3.1% of the canals were straight.
2. Among cervical, middle and apical thirds, curvatures were most frequent in the paical third.
3. 33% of the root canals were narrow and markedly curved.
4. 83% of the cases, foramen of the main root canal were located to one side of the apical vertex, sometimes to a distance 2 or 3 mm.

A. 1
B. 1,3
C. 1,4
D. 1,2 and 4
E. All of the Above

20. What are the correct statements with regards to Salehrabi and Rotstein study (2004)?
1. A total of 1,462,936 teeth were evaluated.
2. It involves clinical exmaination including radiographic survey of the periapical area.
3. A total of 1,420,963 teeth (97.1%) were retained in the oral cavity at the end of 8-yr observation period.
4. Of the 41,973 extracted teeth, 35,697 (85%) had no coronal coverage.

A. 1,2 and 3
B. 2,3 and 4
C. 1,3 and 4
D. 2,3 and 4
E. All of the Above
21. What are the studies performed on smear layer?

1. Instrumentation produce a smeared layer on the dentinal wall.
2. Smear layer may completely obturate the dentinal tubules and can be removed with EDTA.
3. Smear layer may contain bacteria and also prevent the penetration of the antibacterial solution into infected dentinal tubules.
4. Removal of the smear layer has proven its clinical significance.

A. 1, 2
B. 1, 2 and 3
C. 1, 2 and 4
D. 1, 3 and 4
E. All of the Above

22. What are the results from the study of biologic effects of endodontic antimicrobial agents by Spangberg?

1. CMCP, Cresatin and formocresol were all irritating to the host tissue.
2. CMCP, Cresatin and formocresol need to be diluted approximately a thousand times to ensure minimal irritation of tissue.
3. 2% IKI was significantly less toxic than CMCP, Cresatin and formocresol.
4. The inflammation caused by CMCP is still significant after 24 hours.

A. 1, 2
B. 1, 3
C. 1, 4
D. 1, 2, 4
E. All of the Above

23. The patient presents with the office complaining dull ache and swollen gum on tooth #19. There was 8 mm pocket probed at the mesial area of the tooth. What will be your treatment plan? Why?

24. The patient presents in the office with dull ache and significant swelling. What will be your recommendation? State the basis for your decision.
25. The patient presents with swelling and pain on tooth #3. There was palpation and percussion sensitivity. What would you recommend as treatment options to the patients? List the treatment options in order of the probability of the treatment success. Explain the pros and cons of each option.

26. The patient presents with hot and cold sensitivity on lower right area. The patient cannot eat on this side due to pain on biting. There is significant amount of pain on this area. Explain the diagnostic procedures that you will perform.
True or False

1. During the hyperemic or earliest stage of pulpal inflammation
   A. The patient will usually have a chief complaint of sensitivity to heat (True / False)
   B. A radiograph will often show signs of apical thickening or development of a small apical radiolucency (True / False)
   C. This condition is frequently reversible if the offending stimulus is removed and the pulp is protected (True / False)
   D. The tooth will usually not be sensitive to percussion at this stage (True / False)
   E. The patient should be given an antibiotic to help facilitate a rapid recovery (True / False)

2. A patient presents with a suppurative pulpitis in which the chief complaint is sensitivity to heat of a lasting duration.
   F. A radiograph would show definite evidence of apical pathology (True / False)
   G. Sensitivity to percussion or biting on a cotton roll might be helpful diagnostically (True / False)
   H. A pulpotomy would be the optimal mode of treatment for this patient (True / False)
   I. With extensive suppuration or bleeding from the canal or canals, it might be prudent to leave the tooth open for a day or two (True / False)
   J. Slightly relieving the occlusion would be helpful as part of the initial treatment (True / False)

11. From 78% to 87% of all toothaches are traceable to pulpitis. (True / False)

12. Greater than 50% of the mesiobuccal (MB) root of maxillary molars have more than two root canals. (True / False)

13. Pulpitis results from microorganisms invading the pulp in conjunction with caries, excessive erosion and attrition, tooth fracture, or periodontal defect. (True / False)

14. Chronic pulpitis can persist for long periods without symptoms. (True / False)

15. Microorganisms cultured from the necrotic pulps of traumatized teeth are dominated by strictly anaerobic bacteria. (True / False)

16. The aim of the endodontic treatment in vital cases is to eliminate the infection from the root canal and to prevent the reinfection. (True / False)

17. Sodium Hypochlorite is effective in removing the smear layer formed on the canal walls. (True / False)

18. Calcium hydroxide dressing efficiently eliminates bacteria which may survive biomechanical instrumentation. (True / False)
19. Reliable and predictable results from calcium hydroxide dressing can be achieved by dressing the canal for 10 minutes. (True / False)

20. Most commercial gutta percha exists as the "beta" crystalline structure. (True / False)

21. Gutta percha can be heated 2-3 mm from the point of deepest penetration. (True / False)

22. In working length radiograph, the most optimal working length is set when the tip of the file is located at the radiographic apex. (True / False)

23. The tactile indicator often referred as 'tugback' is absolute necessity in master cone fitting process in root canal space obturation. (True / False)

24. Loss of a temporary restoration or fracturing of a tooth following endodontic treatment exposes the coronal seal of the root canal to the oral cavity. (True / False)

25. In Swanson and Madison's study, a significant amount of coronal microleakage was evident after 3 days of exposure to artificial saliva. (True / False)

26. The presence of Enterococcus faecalis in failed endodontic treatment is extensively covered in the literature. (True / False)

27. Cracked tooth can cause the most challenging diagnostic problem since the symptoms are usually inconsistent and erratic without obvious signs. (True / False)

28. Hand files are an integral part of any rotary technique even with the advancement in the design and manufacturing of the NiTi rotary files. (True / False)

29. It is important to establish referral relationship with an endodontist to deliver proper endodontic treatment for patients in general dental practice. (True / False)

30. Osteonecrosis of the Jaw induced by tooth extraction can be prevented by retaining the tooth with endodonic treatment. (True / False)

**Short Essay Questions:**

1. Discuss briefly the three uses for calcium hydroxide in endodontics.

2. Discuss briefly the storage media that can be used for avulsed teeth.

3. Discuss briefly the importance of apex maturity in revasculization of traumatized teeth.
4. Name and differentiate the two different types of pulp capping.

5. Discuss briefly two different types of endo failure and their retreatment prognosis.

6. Name two different retrofill materials used in apicoectomy.

7. Discuss briefly the role of radiograph in diagnosing a vertical root fracture.

8. What is the active ingredient in Sargenti paste?

9. Discuss briefly the difference between an apical granuloma from an apical cyst.