2016 National Prosthodontic Resident Exam with Answers and References

1. The risk of dental implant failure has been shown to be:

   a. Increased with Type I diabetes, but is unchanged with Type II diabetes
   b. Unchanged with Type I diabetes, but is increased with Type II diabetes
   c. Increased with both Type I and Type II diabetes
   d. Unchanged with both Type I and Type II diabetes

**Implants**  **Answer:** d  

2. In comparing conventional computed tomography (CT) imaging to periapical radiographs in diagnosing radiolucencies around endodontically treated teeth, the CT scan showed:

   a. No difference in prevalence
   b. Radiolucencies not evident on the periapical images
   c. Fewer radiolucencies than the periapical radiographs
   d. Less sensitivity and specificity than periapical radiographs

**Radiology**  **Answer:** b  

3. Three types of blockout are used to prepare the cast during partial removable dental prosthesis framework fabrication. They are termed “arbitrary”, “paralleled”, and “____________” blockout.

   a. Horizontal
   b. Angled
   c. Shaped
   d. Spaced

**PRDP**  **Answer:** c  
4. Anterior-posterior spread is defined as:
   a. The distance along the residual ridge crest from the center of the most anterior implant to the center of the most posterior implant
   b. The perpendicular distance between horizontal lines drawn through the center of the most anterior implant and the distal of the most posterior implants
   c. The radius of the arc formed by the implant centers
   d. The average height difference between the anterior and posterior implant abutments

**Implants**  **Answer:** b


5. All of the following are indications for the use of denture adhesive EXCEPT one. Which one is the exception?
   a. Unsatisfied expectations of stability with adequately made complete dentures
   b. Unsatisfied expectations of retention with adequately made complete dentures
   c. Desired supplemental retention for psychological reasons
   d. Desired supplemental stability for psychological reasons
   e. Desired supplemental retention for ill-fitting complete dentures

**CRDP**  **Answer:** e


6. The “contact lens effect” is best utilized for blending facial ceramic restorations with:
   a. Subgingival finishing lines
   b. Discolored root surfaces
   c. Translucent resin cements
   d. Long beveled margins

**Esthetics**  **Answer:** c

7. Which element is responsible for tarnish and corrosion resistance in cobalt and nickel base alloys?
   a. Nickel
   b. Aluminum
   c. Beryllium
   d. Silicon
   e. Chromium

**Materials**  **Answer:** e  

8. Distal drifting into an edentulous space occurs most commonly with which tooth?
   a. Lateral Incisor
   b. Canine
   c. Premolar
   d. Molar

**Other**  **Answer:** c  

9. Which of the following describes the relationship of denture teeth in protrusion on an articulator if 30° cusp teeth are set on a 0° plane of occlusion with the anterior teeth set in 30° anterior guidance and the condylar guidance set at 45°?
   a. All teeth in contact
   b. No anterior teeth contact/posterior teeth contact
   c. No teeth in contact
   d. Anterior teeth contact/no posterior teeth contact

**CRDP**  **Answer:** d  
10. Which of the following graft materials results in the least loss of socket dimensions following flapless extraction of teeth?

   a. Allograft
   b. Xenograft
   c. Alloplast
   d. Growth factors mixed with autogenous bone

**Wound healing**  **Answer:** b  

11. Which of the following categories in Turner's classification of worn dentitions has lost vertical dimension of occlusion?

   a. Category 1
   b. Category 2
   c. Category 3
   d. Category 4

**Occlusion**  **Answer:** b  

12. Which of the following is correct regarding the immediate placement of implants in sites exhibiting periapical pathology?

   a. Immediate placement is contraindicated
   b. Does not require antibiotic coverage
   c. Implant survival rate is comparable to sites without periapical pathology
   d. Dehiscence or fenestration is not a contraindication for immediate placement

**Implants**  **Answer:** c  
13. What percent of free monomer remains in heat activated acrylic after processing?
   
a. 0.2-0.5%
   
b. 0.5-1.0%
   
c. 1.0-1.5%
   
d. 1.5-2.0%

**Materials Answer:** a


14. Reducing the cement gap at the shoulder finish line for a complete coverage crown is best achieved by:
   
a. Applying high pressure during cementation
   
b. Increasing the taper of the tooth preparation
   
c. Decreasing the height of the preparation
   
d. Creating relief space on the inside of the crown

**FDP Answer:** d


15. All of the following materials may contain fluoride and are indicated for patients with increased risk of caries EXCEPT one. Which one is the exception?
   
a. Amalgam
   
b. Glass ionomer or resin-modified glass ionomer
   
c. Composite
   
d. Intermediate restorative material

**Materials Answer:** d


16. Regarding 15.5% ferric sulfate and 10% aluminum chloride retraction medicaments, all of the following are true EXCEPT one. Which one is the exception?

a. After 30 minutes, ferric sulfate causes moderate to severe damage to the sulcular connective tissue
b. After 30 minutes, aluminum chloride may cause minor damage to the sulcular connective tissue
c. Damage to the sulcular epithelium usually resolves in 12 days for both medicaments
d. The damage caused by ferric sulfate takes at least 7 days to begin to return to normal

Pharm  Answer: d

17. All of the following are signs or symptoms of epinephrine overdose EXCEPT one. Which one is the exception?

a. Elevated heart rate and/or blood pressure
b. Anxiety and restlessness
c. Perspiration and dizziness
d. Decreased level of consciousness and/or sleepiness

Pharm  Answer: d

18. Clinically, what dimension would represent the safety distance from the mental foramen during interforaminal implant placement?

a. 3 mm anterior
b. 4 mm anterior
c. 5 mm anterior
d. It does not matter since the nerve is usually buccal at this location

Implants  Answer: c
19. All statements regarding the estimated survival rate of all-ceramic and metal-ceramic single crowns (SC) are true EXCEPT one. Which one is the exception?

a. All-ceramic SC exhibit similar survival rates as metal-ceramic SC
b. Densely sintered zirconia SC experienced significantly more veneering ceramic fractures than metal-ceramic SC
c. Densely sintered zirconia SC had a similar loss of retention compared to metal-ceramic SC
d. Feldspathic-based ceramic and zirconia SC exhibited significantly lower survival rates in the posterior region

Materials Answer: c


20. Regarding the biological complications of all-ceramic and metal-ceramic crowns, all statements are true EXCEPT one. Which one is the exception?

a. Loss of abutment tooth vitality occurred more frequently for metal-ceramic than all-ceramic crowns
b. Abutment tooth fracture occurred more frequently for all-ceramic than metal-ceramic crowns
c. The cumulative 5-year complication rate for caries on abutment teeth is the same for all-ceramic and metal-ceramic crowns
d. Biological complications are rarely reported for all-ceramic crowns

FDP Answer: b

21. The angle formed by the intersection of the protrusive and nonworking side condylar paths as viewed in the sagittal plane is termed:

a. Stuart’s angle  
b. Frankfort mandibular angle  
c. Fischer’s angle  
d. Bennett angle  
e. Lucia’s angle  

**Occlusion**  **Answer:** c  
**Reference:** Fischer R. Beziehungen zwischen den kieferbewegungen und der kauflichenform der zuhne. Schweizerische Monataschrift fur Zahnhielkunde Zurich 1926;74.


22. All of the following characteristics of a retentive clasp affect retention EXCEPT one. Which one is the exception?

a. Diameter  
b. Length  
c. Taper  
d. Distance to height of contour  

**PRDP**  **Answer:** d  

23. During mastication with an intact dentition, the greatest amount of force is placed on the:

a. First molar and second premolar  
b. Central incisors  
c. Canines  
d. First and second molar  

**Occlusion**  **Answer:** a  
24. The average bruxing event lasts:

   a. 5 to 6 seconds
   b. 1-2 minutes
   c. 1-2 hours
   d. Occurs continuously during sleep

TMD  Answer: a  

25. Following extraction, the rate of space closure (i.e. tooth movement) for teeth adjacent to posterior bounded edentulous spaces is greatest for the period:

   a. 0-2 years
   b. 2-3 years
   c. 3-4 years
   d. 4-5 years

Other  Answer: b  

26. Therapeutic strategies of the CAMBRA protocol include all following EXCEPT one. Which one is the exception?

   a. Antimicrobial therapy
   b. Metabolic management
   c. pH control
   d. Diet and home care

Other  Answer: d  
27. Which one of the following is NOT a design philosophy for Kennedy Class I or II partial removable dental prostheses?

a. Stress equalization
b. Physiologic basing
c. Mucostatic equalization
d. Broad stress distribution

**PRDP  Answer:** c  

28. The functional cusp bevel is placed at a _____ degree angle to the long axis of the tooth preparation?

a. 15  
b. 30  
c. 45  
d. 60  
e. 75

**FDP  Answer:** c  

29. Which of the following is the primary function of the superior head of the lateral pterygoid muscle?

a. Elevation of the mandible  
b. Positioning the articular disk during closure  
c. Protrusion of the mandible  
d. Has no effect on the disk  
e. Positioning the articular disk during opening

**Anatomy  Answer:** b  
30. All the following statements are true for the restoration of endodontically treated teeth EXCEPT one. Which one is the exception?

- a. The remaining coronal tooth structure determines whether a tooth requires a post
- b. A non-uniform ferrule height is as effective as a uniform ferrule height
- c. 4 to 5 mm of gutta-percha is necessary to provide a reliable apical seal
- d. Posts do NOT reinforce remaining tooth structure
- e. Crown lengthening or orthodontic extrusion are indicated for short clinical crowns

**FDP**  **Answer:** b  

31. All of the following statements about obstructive sleep apnea (OSA) are correct EXCEPT one. Which one is the exception?

- a. Diagnostic criteria for OSA include sleep oriented history, physical examination, and findings identified by sleep testing
- b. Behavioral treatment options include weight loss, exercise, positional therapy, avoidance of alcohol, and sedatives before bedtime
- c. Positive airway pressure is the treatment of choice for mild, moderate, and severe OSA
- d. Patients with severe OSA are more effectively treated with oral appliances than with nasal CPAP

**Other**  **Answer:** d  

32. Which of the following is considered the most frequent prosthetic complication of implant supported fixed dental prostheses?

- a. Peri-implantitis
- b. Abutment/screw loosening
- c. Loss of retention of cemented FDPs
- d. Fracture of the veneering material

**Implants**  **Answer:** d  
33. All of the following statements are true regarding addition silicone impression materials EXCEPT one. Which one is the exception?

a. Silicone impression materials release hydrogen gas  
b. It is recommended to wait at least 30 minutes before the gypsum casts are poured  
c. Latex gloves have been shown to adversely affect the setting of addition silicone impressions  
d. Residual monomer in acrylic provisional restorations can accelerate the setting of addition silicone impressions

**Materials**  **Answer:** d  

34. Which of the following statements regarding cranial nerve VII is correct?

a. It is a derivative of the first branchial arch that exits the cranium via the stylomastoid foramen, to supply the muscles of facial expression  
b. It is a derivative of the second branchial arch that exits the cranium via the stylomastoid foramen, to supply the muscles of facial expression  
c. It is a derivative of the first branchial arch that exits the cranium via the stylomastoid foramen, to supply the muscles of mastication  
d. It is a derivative of the second branchial arch that exits the cranium via the foramen rotundum, to supply the muscles of muscles of facial expression

**Anatomy**  **Answer:** b  
35. All of the following statements regarding the peri-implant soft tissue color and selection of abutment materials are true EXCEPT one. Which one is the exception?

   a. The color of peri-implant soft tissue is significantly different from contra-lateral natural teeth regardless of abutment material
   b. Zirconia abutments resulted in a statistically significant improvement in peri-implant soft tissue color compared to gold abutments
   c. No correlation was found between the thickness of the peri-implant soft tissue and the abutment impact on the soft tissue color
   d. Titanium abutments resulted in the greatest variation of soft tissue color compared to contra-lateral teeth

Perio Answer: b

36. All of the following statements about denture adhesives are correct EXCEPT one. Which one is the exception?

   a. Denture adhesives may improve the wearer's perception of retention, stability, and quality of life
   b. Neurotoxicity is the most serious side effect associated with denture adhesives
   c. Most side effects related to adhesives have been linked to the presence of zinc
   d. Denture adhesives are not indicated for well-fitting dentures

CRDP Answer: d
37. All of the following are true regarding acid-producing microbiota that live on the tooth surface EXCEPT one. Which one is the exception?

- a. 4.5 is the critical pH threshold for enamel demineralization
- b. Decrease in pH promotes growth of acid-tolerant species
- c. Decrease in pH promotes the growth of acid-generating species
- d. A wide spectrum of species lives on the tooth surface

Other Answer: a

38. All of the following are true regarding periodontal therapy and a patient’s atherosclerotic profile EXCEPT one. Which one is the exception?

- a. Periodontitis patients with comorbidity benefitted most from periodontal therapy
- b. Periodontal treatment improves endothelial function and reduces biomarkers of atherosclerotic disease
- c. Periodontal treatment did not improve endothelial function in those who have diabetes
- d. Improvement of endothelial function is consistently reported

Perio Answer: c

39. Which of these vessels do NOT contribute blood supply to the temporomandibular joint or joint capsule?

- a. Superficial temporal artery
- b. Maxillary artery
- c. Anterior tympanic artery
- d. Facial artery

Anatomy Answer: d
40. All of the following are true for TMD diagnostic imaging EXCEPT one. Which one is the exception?

   a. CBCT allows for the evaluation of early bony changes
   b. MRI has superior soft tissue differentiation over tomography
   c. Imaging cannot be used to confirm a clinical diagnosis
   d. Panoramic radiography may be used for hard tissue screening

   TMD  Answer: c


41. All of the following are true for OSA therapy EXCEPT one. Which one is the exception?

   a. CPAP therapy is considered the first treatment of choice
   b. Mandibular advancement devices have similar effectiveness in the case of mild OSA
   c. Effectiveness of CPAP may be offset by inferior compliance
   d. MADS are NOT recommended for patients with moderate to severe OSA

   Other  Answer: d


42. All of the following are true regarding a patient’s perception of complete denture occlusal schemes and the clinician’s objective evaluation of treatment EXCEPT one. Which one is the exception?

   a. Anatomic teeth arranged for conventional and lingualized bilateral balance were acceptable to patients
   b. Esthetic factors do not affect patient perceptions
   c. Lingualized bilateral balance was favored when the edentulous ridge was severely atrophied
   d. Little high-quality evidence is available to guide complete denture occlusion

   CRDP  Answer: b

43. All of the following statements regarding residual subgingival cement following placement of a prosthesis on a dental implant are true EXCEPT for one. Which one is the exception?

a. Bleeding on probing is a frequent clinical finding when there is residual subgingival cement
b. Retreatment of the implant restoration and abutment may reduce the incidence of bleeding on probing
c. Marginal gap between the implant restoration and the abutment should be small to prevent excess subgingival cement
d. Screw retention should be considered for deep subgingival prosthetic interfaces

**Implants**  **Answer:** c


44. A Cochrane Collaboration meta-analysis on the available data concerning the role of antibiotics in implant success found one of the following. Please select the correct answer.

a. Preoperative use of antibiotics is recommended to prevent implant failure
b. Postoperative use of antibiotics is recommended to prevent implant failure
c. Preoperative or postoperative use of antibiotics cannot be recommended to prevent implant failure
d. Preoperative and postoperative use of antibiotics can be recommended to prevent implant failure

**Pharm**  **Answer:** a


45. All of the following are expected outcomes when increasing the occlusal vertical dimension EXCEPT one. Which one is the exception?

a. Width of the smile is unchanged
b. Excessive maxillary gingival display decreases
c. Area framed by the upper and lower lips (display zone) increases
d. Distance between maxillary central incisor edge and the lower lip increases

**Esthetics**  **Answer:** b

46. All of the following statements are true regarding crowned endodontically-treated premolars after six years of service EXCEPT one. Which one is the exception?

a. Teeth with no coronal walls performed poorly regardless of the presence or absence of a 2 mm ferrule
b. Presence of a prefabricated fiber post did not contribute significantly to survival
c. Success rate worsens for teeth deprived of any coronal wall and restored without intraradicular retention
d. The amount of tooth structure left at the coronal level should be more accurately assessed after abutment preparation
e. There is no difference in survival rate between premolars with 2, 3, and 4 coronal walls remaining if restored with a fiber post

**FPD Answer:** b


47. All of the following statements regarding changes in the long term spatial relationship of implants relative to teeth in adult patients are incorrect except one. Which statement is correct?

a. The positions are stable in the absence of restoration or tooth loss
b. Minor movement of implants occurs as passive eruption, resulting from microscopic wear of the implant platform
c. No change in implant position is seen relative to teeth, but soft tissue changes are common
d. Minor changes in implant position relative to the dentition are not uncommon

**Implants Answer:** d

48. Resonance Frequency Analysis (Ostell):

a. Is the standard to measure success and maintenance of osseointegration
b. Has not been found to correlate to bone to implant contact
c. Should be used to determine success of immediately loading
d. Roughness-enhancing surface treatments can increase ISQ values in later osseointegration phases, improving secondary implant stability

**Implants  Answer: d**


49. All of the following correctly describe the differences between DFDBA and FDBA EXCEPT one. Which one is the exception?

a. DFDBA has had the inorganic components removed while FDBA has retained them
b. DFDBA is considered more osseoinductive than FDBA due to more readily available organic components such as bone morphogenic proteins (BMPs)
c. FDBA is considered more osseoconductive due to the retention of more mineralized content available as a scaffold to help facilitate bone growth
d. DFDBA generally has a shorter resorption profile than does FDBA
e. Both DFDBA and FDBA are considered osteogenic

**Wound healing  Answer: e**


50. All of the following statements are true regarding dental implants EXCEPT one. Which one is the exception?

a. The surface of dental implants promotes the creation of a biofilm
b. Microbiota associated with peri-implant structures in both health and disease mirror closely those that populate periodontal structures
c. The spread of inflammation of peri-implant mucositis to peri-implantitis is similar to that of gingivitis to periodontitis
d. Probing depths around implants can be slightly deeper than those around teeth in the same healthy patient
e. Pus formation represents a specific diagnostic sign for the presence of peri-implantitis

**Implants  Answer: c**

51. Which of the following has been associated with crestal bone loss in endosseous root-form implants?
   a. Occlusal overloading
   b. Retained cement
   c. Very thin buccal plate at time of implant placement
   d. Utilizing implants with an external hex connection
   e. Use of implants with aggressive thread designs

   **Implants Answer:** e
   **Reference:** Misch CE, Contemporary Implant Dentistry. 3rd Ed. 2008.

52. What is the most effective way to decrease the rigidity of a retentive cast clasp arm during the framework try-in appointment?
   a. Decrease the thickness
   b. Decrease the taper
   c. Increase the taper
   d. Shorten clasp length

   **PRDP Answer:** a

53. Which statement describes a House Class I palatal throat form?
   a. 5-12 mm of immovable resilient soft tissue distal to a line drawn from the distal edge of the tuberosities
   b. Relatively immovable resilient band of tissue approximately 3-5 mm distal to a line drawn across the palate at the distal edge of the tuberosities
   c. The curtain of the soft palate turns down abruptly 3-5 mm anterior to a line drawn across the palate at the distal edge of the tuberosities
   d. Soft palate drops off immediately from the hard palate and generally there is a deep palatal vault

   **CRPD Answer:** a
54. What is the minimum space required for a Locator overdenture attachment measured from the implant restorative platform?

   a. 3.2 mm vertical and 9 mm horizontal  
   b. 4.7 mm vertical and 7 mm horizontal  
   c. 6.7 mm vertical and 5 mm horizontal  
   d. 8.5 mm vertical and 5 mm horizontal

CRDP Answer: b

55. Regarding the rest interocclusal distance, what is the range of measurement usually recorded?

   a. 2-3 mm  
   b. 4-5 mm  
   c. 5-7 mm  
   d. 0.4-6 mm

CRPD Answer: a

56. Canine guidance and lateral disclusion result in:

   a. An increase in EMG activity of all muscles  
   b. Isotonic muscle contraction of the medial pterygoid muscle  
   c. Increased activity in the anterior temporal muscle during lateral slide from centric occlusion  
   d. A decrease in EMG activity of the temporal and masseter muscles  
   e. No significant effect on the EMG activity of the temporal and masseter muscles

Anatomy Answer: d
57. A type of statistical test used to analyze three or more treatment groups with quantitative data would be:

   a. Mann-Whitney test
   b. Chi-squared analysis
   c. Unpaired t-test
   d. Analysis of variance (ANOVA)

**Other Answer:** d  

58. Occlusal rest seats should be:

   a. Prepared after the proximal guide planes are prepared
   b. Prepared before the proximal guide planes are prepared
   c. Greater than one-half the intercuspal distance
   d. Greater than 3 mm in depth

**PRDP Answer:** a  

59. Which part of the soft palate touches in velopharyngeal closure?

   a. Anterior 1/3
   b. Middle 1/3
   c. Posterior 1/3
   d. Middle-posterior 2/3

**Anatomy Answer:** b  
60. Following polymerization, the expected volumetric shrinkage of pure methyl methacrylate monomer is:

a. 2%
b. 7%
c. 14%
d. 21%e. none

**Materials Answer:** d  

61. On a non-Arcon articulator, changing the third point of reference between facebow transfers on the same patient affects the accuracy of the:

a. Intercondylar distance  
b. Bennett angle  
c. Condylar inclination  
d. Anterior guidance  
e. Immediate mandibular lateral translation

**Occlusion Answer:** c  

62. All of the following are true regarding silane coupling agents EXCEPT one. Which one is the exception?

a. Used to pretreat ceramic surfaces  
b. Silane coupling agents usually contain a strong acid  
c. Silanes are bifunctional molecules  
d. Silane coupling agents have limited shelf-life

**Materials Answer:** b  
63. All of the following are true regarding Kennedy Class I or II implant-supported removable partial overdentures (ISRPD) EXCEPT one. Which one is the exception?

a. Addition of implants in the distal extension regions can improve the oral health quality of life
b. Short dental implants (6mm) show low survival rates
c. Prosthetic complication rates are similar to conventional RPDs (CRPD)
d. The center of highest occlusal force is more distal than a CRPD

Implants  Answer: b


64. Which of following prostheses demonstrate the shortest survival time when teeth are restored with cast post and cores?

a. Complete crown
b. Fixed dental prosthesis
c. Double crown-retained removable dental prosthesis (telescopic denture)
d. Conventional partial removable dental prosthesis

FDP  Answer: c

65. Which of the following best describes the behavior of monolithic zirconia ceramic as an antagonist material with enamel?

a. The surface characteristics of zirconia do NOT affect enamel antagonist wear
b. Polished zirconia specimens show favorable wear behavior
c. Glazed zirconia specimens show favorable wear behavior
d. Polished and glazed zirconia specimens show favorable wear behavior

Materials  Answer: b
66. All of the following increase the hydrophilicity of polyvinyl siloxane EXCEPT one. Which one is the exception?

a. Non-ionic surfactants  
b. Exposed oxygen atoms  
c. Addition of polyether  
d. Platinum

**Materials Answer:** d  

67. Which of the following components of saliva is used to buffer pH?

a. Immunoglobulin  
b. Calcium  
c. Mucin  
d. Bicarbonate

**Other Answer:** d  

68. Which of the following parameters in tooth preparation is considered to be most important for retention?

a. Total occlusal convergence  
b. Abutment height  
c. Surface roughness  
d. Functional cusp bevel

**FDP Answer:** a  
69. All of the following are true regarding the addition of yttria in tetragonal zirconia EXCEPT one. Which one is the exception?

a. Influences the thermal coefficient of expansion
b. Is susceptible to low temperature age degradation
c. Increases fracture toughness
d. Influences translucency

**Materials**  **Answer:** d  

70. Which type of osteoporosis is associated with age?

a. Type I  
b. Type II  
c. Type III  
d. Type IV  

**Wound healing**  **Answer:** b  

71. Enamel is a highly mineralized tissue consisting of what percentage of hydroxyapatite:

a. 100%  
b. 96%  
c. 89%  
d. 83%  
e. 77%

**Anatomy**  **Answer:** b  
72. The prolonged use of antihistamines may produce xerostomia. This results from their:

a. Anticholinergic action  
   b. Cholingergic action  
   c. Inhibition of histamine-induced salivation  
   d. Direct depression of salivary gland cells

**Pharm Answer:** a  

73. Northern-exposure sunlight in the middle portion of a day with a slightly overcast sky is considered to be the optimal light source. Which of the following terms has been used to describe this light?

a. Artificial daylight  
   b. Sunset light  
   c. Standard daylight  
   d. GMT light

**Esthetics Answer:** c  

74. What Color Rendering Index (CRI) value for an artificial light is considered to be appropriate for dental shade matching?

a. >90  
   b. 40  
   c. 60  
   d. 85

**Esthetics Answer:** a  
75. Which dentin shade requires the least porcelain thickness to reproduce an accurate hue?

   a. A3  
   b. C4  
   c. D1  
   d. B1  

**Esthetics**  Answer: d


76. A residual ridge deformity/defect that presents with faciolingual loss of tissue width and normal ridge height would be classified into which Siebert Classification:

   a. Class I  
   b. Class II  
   c. Class III  
   d. Class IV  

**Anatomy**  Answer: a


77. When implant placement is NOT an option, all of the following criteria are desirable for the postsurgical site for an auricular prosthesis EXCEPT one. Which one is the exception?

   a. Tissues should be immobile and without irregularities  
   b. The ear lobule should not be retained  
   c. The tragus should be maintained  
   d. A skin graft should be hair-free and without sebaceous glands  
   e. The external auditory meatus should be patent and lined with a skin graft as necessary  

**MF**  Answer: a

78. Sleep deprivation and chronic pain are closely related. One comorbidity associated with these patients is:

a. Myofascial pain dysfunction syndrome  
b. Fibromyalgia  
c. Chronic fatigue syndrome  
d. Infectious arthritis of the TMJ

Other Answer: b  
Reference: Greene C, Laskin D. TMD’s Bridging the Gap; Chapter 5 Sleep Deprivation; Quintessence 2015 Page 49.

79. Surfaces of stone casts will be penetrated by processed acrylic resin unless coated with a separating medium. The recommended medium is:

a. Petrolatum ointment  
b. Alginate-based medium  
c. Liquid soap  
d. Sodium silicate solution

Materials Answer: b  

80. Upon cooling from the molten state, the approximate percentage of shrinkage of a dental base metal alloys is:

a. 0.5-0.7%  
b. 2.0-2.7%  
c. 6.0-6.9%  
d. 10-12%

Materials Answer: b  

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81. Which one of the following is a design objective for a partial removable dental prosthesis?

   a. Guide planes to aid in placement and reciprocation
   b. Active engagement of undercuts
   c. Flexible major connector for load distribution
   d. Indirect retention to prevent motion of the edentulous base toward the tissue

PRDP  Answer: a

82. All of the following are theories for the pathogenesis of Medication-Related Osteonecrosis of the Jaw “MRONJ” EXCEPT one. Which one is the exception?

   a. Angiogenesis inhibition
   b. Constant microtrauma
   c. Vitamin K deficiency
   d. Chronic infection

Pharm  Answer: a

83. Halitosis is typically caused by:

   a. Sulfur gas compounds
   b. Bacterial endotoxin
   c. Bacterial exotoxin
   d. Methane

Other  Answer: a
84. Regarding the association between repeated abutment insertions and peri-implant inflammation:

a. There was a significant difference between abutments removed 3 times
b. There was a significant difference between abutments removed twice
c. There was a significant difference between abutments removed once
d. There was no significant difference between abutments removed once or several times

Perio  Answer: d


85. In a two-body wear test with zirconia, lithium disilicate or feldspathic porcelain opposing enamel, zirconia is:

a. Rougher in comparison to lithium disilicate and feldspathic porcelain
b. Smoother than lithium disilicate but rougher than feldspathic porcelain
c. Smoother than both lithium disilicate and feldspathic porcelain
d. Rougher than lithium disilicate but smoother than feldspathic porcelain

Materials  Answer: c


86. Which classification of erythematous candidiasis is commonly known as “denture stomatitis”?

a. Acute atrophic
b. Chronic atrophic
c. Angular cheilitis
d. Median rhomboid glossitis
e. Chronic multifocal

Oral Path  Answer: b

87. According to the Aramany classification system, which class might have teeth #5-12 remaining with a defect in the posterior region?

a. Class I  
b. Class II  
c. Class IV  
d. Class V  
e. Class VI

**MF Answer: d**  

88. All of the following muscles are innervated by the pharyngeal plexus EXCEPT one. Which one is the exception?

a. Middle constrictor  
b. Inferior constrictor  
c. Palatopharyngeus  
d. Stylopharyngeus  
e. Superior constrictor

**Anatomy Answer: d**  

89. All of the following treatments are necessary for the initial management of abused oral tissues during complete denture fabrication EXCEPT one. Which one is the exception?

a. Correct faulty occlusion and other denture defects causing instability  
b. Correct the intaglio surface of the denture  
c. Surgical removal of redundant tissue  
d. Soft diet and removal of the dentures at night

**CRDP Answer: c**  
90. The goals of biologic occlusion include all of the following EXCEPT one. Which one is the exception?

a. No interferences between maximum intercuspation and centric occlusion
b. Effective canine guidance or group function
c. A minimum of two cusp to fossa contacts for each posterior tooth
d. No cross-tooth balancing contacts

Occlusion Answer: c

91. All of the following are reasons for considering altering vertical dimension EXCEPT one. Which one is the exception?

a. Improve esthetics by altering tooth display
b. Improve occlusal relationships, such as correcting anterior open bites
c. Optimizing bite force
d. Gain restorative space

Occlusion Answer: c

92. Which of the following ingredients is commonly used as an inhibitor in methyl methacrylate monomer?

a. Camphoroquinone
b. Benzoyl peroxide
c. Oleic acid
d. Hydroquinone
e. Hydrogen peroxide

Materials Answer: d
93. A fluid which becomes less viscous and more flowable upon the application of pressure displays:

a. Rheopectic behavior  
b. Tangential stress relaxation behavior  
c. Differential conversion behavior  
d. Thixotropic behavior  
e. Pseudoplastic behavior

**Materials  Answer:** d  

94. Which of the following is the catalyst for the reaction of polyvinyl siloxane impression materials?

a. Ammonium salt  
b. Platinum salt  
c. Lead dioxide intermediate  
d. Silicon dioxide  
e. Copper hydroxide

**Materials  Answer:** b  

95. Which of the following can be a biological complication of a monolithic zirconia custom abutment with an internal connection titanium dental implant?

a. Abutment screw fracture  
b. Titanium tattoo  
c. Altered gingival esthetics  
d. Abutment fracture

**Implants  Answer:** b  

96. Which of the following techniques have been shown to produce the best results for socket grafting?

a. FDBA placed with non-resorbable membrane  
b. FDBA placed with resorbable membrane  
c. DFDBA placed with no membrane  
d. 30:70 mix of FDBA and DFDBA with resorbable membrane  
e. no clear superiority has been demonstrated

**Wound healing   Answer:** e  

97. The development of transparent zirconia is made possible through which of the following innovations:

a. Control of micro spaces in the polycrystal during initial sintering  
b. Powder consolidation of nanocrystalline grain size zirconia powder  
c. Use of ceria instead of yttria as a doping agent  
d. Translucent zirconia is not possible because there is no glassy phase for light transmittance

**Materials   Answer:** b  

98. All the following are true regarding fracture resistance of severely compromised endodontically treated teeth with bonded post and cores EXCEPT one. Which one is the exception?

a. Cast posts have higher fracture resistance than quartz fiber or prefabricated titanium  
b. Quartz fiber posts have more favorable fracture patterns, but low fracture resistance  
c. Cast posts have more unfavorable fracture patterns  
d. Titanium posts primary mode of failure is debonding

**Other   Answer:** d  
99. All of the following are phases of wound healing leading to osseointegration EXCEPT one. Which one is the exception?
   a. Hemostasis phase
   b. Inflammatory phase
   c. Proliferative phase
   d. Integration phase
   e. Remodeling phase

Wound healing Answer: d

100. All of the following are true regarding denosumab EXCEPT one. Which one is the exception?
   a. Inhibits osteoclast function and associated bone resorption
   b. Administered subcutaneously
   c. Associated with osteonecrosis of the jaw
   d. Classified as a bisphosphonate
   e. Does not bind to bone

Pharm Answer: d

101. All of the following are true regarding technical and biological complications related to crown to implant (C:I) ratio EXCEPT one. Which one is the exception?
   a. Unfavorable C:I ratio is a major risk factor for bone loss
   b. Unfavorable C:I ratio is a risk for screw loosening
   c. C:I ratio may be difficult to assess due to variations in implant design or implant-abutment connection
   d. C:I ratios between 0.5 and 1, extrapolated from tooth-supported restorations, may no longer be valid

Implants Answer: a

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102. Which of the following noble metals acts to lower the coefficient of thermal expansion in a metal-ceramic alloy?

a. Au  
b. Pd  
c. Ru  
d. Os  
e. Ir

Materials Answer: b  

103. All of the following are true regarding complete denture fabrication for the head and neck radiation patient EXCEPT one. Which one is the exception?

a. If the primary target of radiation includes teeth and alveolar bone, immediate dentures are contraindicated  
b. Arrangement of denture teeth should be located in the neutral zone regardless of the occlusal scheme employed  
c. Soft denture liners as a permanent base is typically indicated  
d. Initiation of denture fabrication is subject to variation depending on the patient’s oral response to radiation treatment  
e. A torus in a heavily irradiated region might be a contraindication for prosthetic treatment

MF Answer: c  

104. All of the following statements about oral appliance therapies for sleep related breathing disorders are correct EXCEPT one. Which one is the exception?

a. The presence of 8-10 healthy teeth in each arch and a minimum of 5mm protrusive capacity are usually required  
b. Promote forward tongue position  
c. Side effects may include alteration of dental occlusion  
d. Dual block mandibular repositioning devices are advantageous because they facilitate incremental adjustment

Other Answer: b  
105. All of the following are correct regarding CAD/CAM frameworks EXCEPT one. Which one is the exception?

   a. Precision of fit surpasses one-piece casting and laser-welded frameworks
   b. Accuracy of frameworks is not influenced by framework design
   c. Zirconia frameworks with complex geometries are subject to a greater sintering distortion
   d. Zirconia frameworks are confirmed to exhibit an accurate fit for full arch prostheses

Other Answer: d

106. All of the following are true concerning the impact the impact of radiation therapy on extraction and/or dental implant therapy EXCEPT one. Which one is the exception?

   a. Failures are rare when radiation dose is less than 45 Gy
   b. ORN risk is higher in the mandible
   c. Implant survival is slightly higher in the maxilla
   d. The anterior mandible usually receives a lower dose of radiation

MF Answer: c

107. If a patient has a single toothbound edentulous space, which treatment has the worst prognosis for the abutments over 5 years?

   a. Fixed dental prosthesis
   b. Single unit implant with a crown
   c. Removable partial dental prosthesis
   d. No treatment

Other Answer: c
108. All of the following are reasons for less predictability of cantilevered implant prostheses in the maxilla EXCEPT one. Which one is the exception?

a. Inadequate lip support, esthetic problems, and difficulty with speech
b. Interference of implant placement from maxillary sinus and nasal cavity
c. Adequate bone limited to medial wall of nasal cavity and lateral wall of the sinuses
d. Resorption patterns and poor quality of bone in posterior maxilla

**Implant Answer:** c


109. Which combination of surgical procedures utilized immediately following tooth extraction is most likely to preserve the hard and soft tissue in a Type I socket?

a. Flap reflection, no bone graft, immediate implant placement, and provisionalization
b. Flap reflection, no bone graft, delayed implant placement
c. Flapless procedure, no bone graft, delayed implant placement
d. Flapless procedure, FDBA graft, immediate implant placement, and provisionalization

**Wound healing Answer:** d


110. Most heat-pressed materials contain which of the following as a major reinforcing crystalline phase, dispersed in a glassy matrix?

a. Aluminum
b. Zirconia
c. Leucite
d. Platinum
e. Yttrium

**Materials Answer:** c

111. When using the Broadrick Occlusal Plane Analyzer technique, what anterior anatomical landmark is typically used for recording the first arc with the compass?

   a. Incisal edge of the mandibular lateral incisor
   b. Cusp tip of the mandibular canine
   c. Distal slope of the mandibular canine cusp tip
   d. Buccal pit of the mandibular first molar

**Occlusion Answer:** c


112. According to the guidelines published by the American Heart Association concerning the prevention of infective endocarditis, antibiotic prophylaxis is recommended for all of the following conditions EXCEPT one. Which one is the exception?

   a. Prosthetic heart valve
   b. Cardiac murmurs without regurgitation
   c. Cardiac transplantation recipients with a development of cardiac valvulopathy
   d. Cardiomyopathy

**Pharm Answer:** d


113. A high noble dental casting alloy must contain __________% weight noble alloy with __________% weight gold?

   a. ≥40, ≥60
   b. ≥60, ≥40
   c. ≥25, 0
   d. <25, 0
   e. ≥30, ≥70

**Materials Answer:** b

**Reference:** ANSI/ADA Spec. No. 5 for Dental Casting Alloys
114. Which CAD surgical implant guide is the least accurate for implant placement?

a. Tooth-supported
b. Mucosa supported
c. Bone supported
d. Tooth-mucosa supported
e. All have the same degree of accuracy

**Implants Answer: c**


115. All of the following statements regarding the effect of chemical disinfectants on the color stability of acrylic denture teeth are true EXCEPT one. Which statement is incorrect?

a. Neutral soaps can be used for prosthesis disinfection without inducing color changes
b. All chemical disinfectants affect the color
c. Sodium hypochlorite has less effect on color than most alternative disinfectants
d. Color changes are dependent on exposure time to chemical disinfectants

**Materials Answer: c**


116. All of the following statements regarding immediate implant placement and provisionalization are correct EXCEPT one. Which statement is INCORRECT?

a. Immediate placement of an implant in an extraction site prevents early crestal bone loss
b. Osseous grafting of the bone-to-implant gap limits horizontal soft tissue changes
c. Osseous grafting of the bone-to-implant gap limits vertical soft tissue changes
d. Immediate provisionalization does not affect the survival rate

**Wound healing Answer: a**

117. Which of the following statements describes the fracture strength of implant abutments with off-axis loading?

   a. Ti abutments with Ti abutment screws exhibit the lowest off-axis strength
   b. Zr abutments with Ti abutment screws exhibit the highest off-axis strength
   c. Ti inserts in Zr abutments exhibit the highest off-axis strength
   d. Ti inserts in Zr abutments can increase the off-axis strength

**Implants Answer: d**


118. All of the following statements regarding the effect of bisphosphonate therapy of bone physiology are correct EXCEPT one. Which statement is incorrect?

   a. Bisphosphonates make bone more compliant and less likely to fracture over time
   b. Osteoclastic resorption of bisphosphonate-loaded bone results in cell death and a re-dosing effect
   c. Bisphosphonates have a half-life of 11 years in bone
   d. IV bisphosphonates accumulate in bone about 140 times faster than oral bisphosphonates

**Pharm Answer: a**


119. Which one of the following clinical findings is characteristic of patients with a high Frankfort Mandibular Angle?

   a. Short clinical crowns
   b. Increased biting force
   c. Class II skeletal relationship
   d. Broad and flat palatal vault

**Anatomy Answer: c**

120. When viewing a diagram of the envelope of motion in the sagittal plane, the maximum intercuspal position (MIP) is located at which position?

   a. The most inferior point  
   b. The most superior point  
   c. The most posterior point  
   d. The most anterior point  

**Occlusion**  \textbf{Answer: b}  

121. Which the following is the most likely cause for fracture of an occlusal rest on a partial removable dental prosthesis (PRDP)?

   a. Casting defect  
   b. Occluding against antagonist tooth  
   c. Inadequate rest preparation  
   d. Improper rest location  

**PRDP**  \textbf{Answer: c}  

122. For a metal-ceramic crown, the coefficient of thermal expansion of the metal should be ______ than that of the veneering ceramic.

   a. Considerably lower  
   b. Slightly lower  
   c. As close as possible  
   d. Slightly higher  
   e. Considerably higher  

**Materials**  \textbf{Answer: d}  
123. Which of the following represents the minimum distance between a natural tooth and an implant in order to preserve the blood supply to the natural tooth’s periodontal ligament.

   a. 0.5 mm  
   b. 1.0 mm  
   c. 1.5 mm  
   d. 2.0 mm

**Implants**  **Answer:** c  

124. Each of the following describes an advantage of a rotational path partial removable dental prosthesis (PRDP) for a Kennedy Class IV patient EXCEPT one. Which one is the exception?

   a. Minimizes number of clasps, reducing tooth coverage and plaque accumulation  
   b. Anterior clasps may often be eliminated, improving esthetics  
   c. Less tooth preparation when compared to precision attachment PRDP or fixed prosthesis  
   d. Modification spaces are easily adapted to add a posterior tooth

**PRDP**  **Answer:** d  

125. Diagnostic criteria for diabetes mellitus include all of the following EXCEPT one. Which one is the exception?

   a. Fasting plasma glucose ≥ 126 mg/dL on two occasions  
   b. Symptoms and signs of diabetes + casual plasma glucose concentration ≥ 200 mg/dL  
   c. 2-hour post-load glucose ≥ 200 mg/dL during Oral Glucose Tolerance Test  
   d. Glycosylated hemoglobin (by A1c assay) ≥ 5.5%

**Other**  **Answer:** d  
126. Which of the following impression materials should NOT be immersed in a disinfectant?

   a. Rubber base
   b. Polyvinyl siloxane
   c. Zinc oxide
   d. Polyether

**Materials Answer:** d


127. All of the following are considered important caries preventive measures EXCEPT one. Which one is the exception?

   a. Patient education
   b. Fluoride varnish 3 times/year
   c. Selecting non-abrasive toothpaste
   d. Daily chlorhexidine rinses 1 week of each month

**Other Answer:** c


128. Which of the following is true regarding the failure rates of short (≤ 10mm) dental implants compared to standard length (≥ 10 mm) dental implants?

   a. The failure rate of short implants is significantly greater than standard length implants
   b. The failure rate of short implants is significantly less than standard length implants
   c. There is no statistical difference between the failure rates of short implants compared to standard length implants
   d. The failure rate of short implants is higher when compared to standard length implants only when placed in the mandibular arch

**Implants Answer:** c

129. According to Walton et al study on the 25-year survival and clinical performance of high gold-based metal-ceramic single unit crowns, which of the following best describe the results?

a. The 10-year survival rate was approximately 85%
b. Mechanical factors accounted for the majority of the crown failures
c. Biologic factors accounted for the majority of the crown failures
d. Differences related to sex, tooth type, or tooth position significantly affected the long term survival

FDP Answer: c

130. According to Tarnow et al., what is the distance from the base of the contact area between teeth to the crest of the bone that will ensure that the papilla will be present 100% of the time?

a. 3mm or less
b. 4mm or less
c. 5mm or less
d. 6mm or less

Implants Answer: c

131. To permit denture-supporting soft tissue to recover and return to normal form, how long prior to impression making should the denture be removed?

a. 2-3 days
b. 1 day
c. 8 hours
d. 12 hours

CRDP Answer: a
132. TMD signs and symptoms are related to all of the following factors EXCEPT one. Which one is the exception?

   a. Genetically determined vulnerabilities
   b. Jaw clenching or tooth grinding
   c. Psychosocial traits and states
   d. Naturally occurring mediotrusive contacts

Occlusion  Answer: d

133. Which one of the statements below is accurate regarding immediately loaded implants placed in smokers when the initial abutment is NOT removed?

   a. Success rates are comparable to those placed in nonsmokers
   b. Success rates are comparable only if implants longer than 8mm are used
   c. Failure rates are greater than nonsmokers
   d. In the mandible, success rates are lower due to the vascularity

Wound healing  Answer: a

134. When the mandible undergoes right laterotrusion, the path of the mesio-lingual cusp of tooth #15 traces a path on the opposing molar. Which of the following describes the direction of the path?

   a. Diagonal, posterior, and buccal
   b. Diagonal, posterior, and lingual
   c. Diagonal, anterior, and buccal
   d. Direct medial and lingual

Occlusion  Answer: a
135. What is the most common reason for treatment failures regarding temporomandibular disorders?

a. Inadequate diagnosis
b. Ineffective treatment
c. Poor patient management
d. Patient compliance

TMD Answer: a

136. Regarding ligaments associated with the TMJ, all of the following statements are true EXCEPT one. Which one is the exception?

a. Ligaments of the TMJ are composed of collagenous connective tissue
b. The purpose of ligaments is to limit joint movements
c. TMJ ligaments include the capsular and articular ligament
d. The stylomandibular ligament may be confused with TMJ pain

TMD Answer: c

137. All of the following are common findings in oral lichen planus EXCEPT:

a. Ulceration
b. White striations
c. Mucosal erythema
d. Vesicles
e. Mucosal pain and burning

Oral Path Answer: d
138. Regarding strength and accuracy of solder joints:

a. A solder gap less than 0.31mm is recommended
b. A gap of 0.76mm or greater is easy to obtain complete fill with solder material
c. The size of the gap does not make any difference
d. Wider gaps increase the joint strength but accuracy may decrease

Materials Answer: d

139. Patients diagnosed with oral mucous membrane pemphigoid should be referred to
a __________________ for a baseline examination.

a. Rheumatologist
b. Ophthalmologist
c. Pulmonologist
d. Neurologist

Oral Path Answer: b

140. All of the following are characteristics of self-adhesive resin cement EXCEPT one. Which one is the exception?

a. Insoluble in oral fluids
b. Require a separate bonding agent
c. High fracture toughness
d. Elastic modulus lower than zinc phosphate

Materials Answer: b
141. Which of the following statements is correct regarding reflex actions of the masticatory system?

a. Nociceptive reflex is a monosynaptic reflex to noxious stimuli and considered to be protective
b. Myotactic reflex is also known as flexor reflex
c. When a skeletal muscle is quickly stretched, a myotactic reflex is elicited causing a contraction of the stretched muscle
d. When a muscle contracts, muscle spindles are elongated which causes the afferent activity output to shut down

TMD  Answer: c

142. The angle formed by the occlusal rest and minor connector should be:

a. < 90 degrees
b. < 60 degrees
c. > 90 degrees
d. > 60 degrees

PRDP  Answer: a

143. Which of the following statements is incorrect regarding chronic apical periodontitis?

a. It may transform into periapical cysts or demonstrate acute exacerbations with abscess formation
b. Histologically, it will display a mixed inflammatory infiltrate
c. Chronic apical periodontitis represents 25% of apical inflammatory lesions
d. It is also known as a periapical granuloma.

Oral Path  Answer: c
144. All of the following are a noble metal EXCEPT one. Which one is the exception?

a. Palladium  
b. Ruthenium  
c. Rhodium  
d. Silver

Materials  Answer: d  

145. Frequent exposure to which of the following liquids has the greatest effect on reducing the surface hardness of polymethylmethacrylate?

a. Coffee  
b. Mouth wash  
c. Wine  
d. Soda

Materials  Answer: b  

146. Which of the following finishing instruments creates the smoothest dentinal surface?

a. Dura white stone  
b. Fine grit diamond  
c. Tungsten carbide finishing bur  
d. Ultrasonic diamond coated tip

FDP  Answer: b  
147. Heat-activated poly (methyl methacrylate) resins commonly include powder and liquid components. When mixed in the proper proportions, the resin mass passes through five distinct stages. These stages are commonly described as:

a. Sandy, adherent, viscous, doughy, and crystalline  
b. Granular, stringy, elastic, plastic, and rigid  
c. Fluid, viscous, elastic, rubbery, and set  
d. Sandy, stringy, dough-like, rubbery, and stiff  
e. Granular, dough-like, thixotropic, rheopectic, and rigid

Materials  Answer: d  

148. The “tripping action of Stone” refers to:

a. The water/powder proportion and its effect on stone when an RDP is fabricated  
b. The removal of a suprabulge clasp  
c. The framework is more retentive on a cast than in the mouth  
d. The action of an infrabulge clasp

PRDP  Answer: d  

149. All of the following are true regarding recrudescent oral herpetic infections EXCEPT one. Which one is the exception?

a. Erythematous macules on non-keratinized mucosa  
b. Multiple fluid-filled vesicles adjacent to the lip vermilion  
c. HSV is a DNA virus  
d. Can be caused by rapid anesthetic injection into the palate

Oral Path  Answer: a  
150. All of the following contribute to the metal-ceramic bond EXCEPT one. Which one is the exception?

a. Differences in thermal coefficient of expansion
b. Interfacial adhesion
c. Mechanical retention
d. Van der Waals forces
e. Chemical bonding

Materials Answer: b