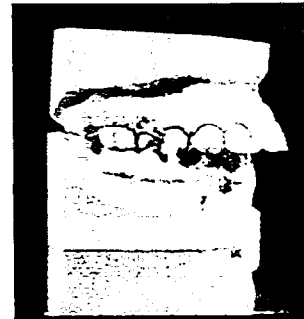


Principles of Orthodontics II Midterm

March 13, 2001

Name Merunissa S. Lambat

1. Which moment to force ratio (M/F) will generally produce bodily movement?
 - A. <1
 - B. 1-7
 - C. 8-10
 - D. >10
2. Which archwire is the springiest (least stiff)?
 - A. 0.016 inch round Nickel-Titanium
 - B. 0.016 inch round stainless steel
 - C. 0.017 x 0.025 inch rectangular stainless steel
 - D. 0.036 inch round stainless steel
3. What does anchorage refer to in orthodontics?
 - A. Bonding resins used to attach brackets to enamel
 - B. Cements used to attach bands to teeth
 - C. Resistance to unwanted tooth movement
 - D. Tooth movement produced with an orthodontic appliance
4. What is the definition of crowding?
 - A. The sum of the mesiodistal widths of the teeth is greater than the arch circumference.
 - B. The sum of the mesiodistal widths of the teeth is less than the arch circumference.
 - ~~C. The sum of the mesiodistal widths of the teeth is the same as the arch circumference.~~
5. Which Angle Classification of malocclusion does this model of a patient's right side depict?
 - A. Class I
 - B. Class II
 - C. Class III



6. Which Angle Classification of malocclusion does this Cephalogram show?

- A. Class I
- B. Class II
- C. Class III



7. What happens to the range when the diameter of a stainless steel wire is doubled?

- A. Decreases
- B. Increases.
- C. Does not change

8. Which type of removable appliance is designed for growth modification?

- A. Active appliances
- B. Functional appliances
- C. Retentive appliances

9. If the incisors are moved so that the interincisal angle has increased substantially, they were most likely

- A. moved bodily.
- B. proclined.
- C. retroclined.

10. Which malocclusion is most likely to have an ANB difference that is greater than normal?

- A. Class I
- B. Class II
- C. Class III

11. Where must the bracket be placed in order to move an incisor closer to the occlusal plane?

- A. Gingival to the normal position
- B. Incisal to the normal position
- ~~C. No change from the normal position~~

12. Clasps should be tightened to the point where they enhance retention of a removable appliance, but not enough to produce tooth movement. A Coffin spring is used to prevent transverse expansion of the maxillary arch.

- A. The first statement is true; the second is false.
- B. The first statement is false; the second is true.
- C. Both statements are true.
- D. Both statements are false.

13. Orthodontic tooth movement produces

- A. bone apposition in pressure zones.
- B. cementum apposition all over the root surface.
- C. hyalinization in pressure zones.
- D. hyalinization in tension zones.

14. Which of the following removable appliances incorporates large lip and cheek pads to relieve muscle pressure on the teeth and alveolar process?

- A. Bionator
- B. Frankel functional regulator
- C. Removable Herbst appliance
- D. Twin Block appliance

15. The Edgewise appliance

- A. is a fixed appliance that uses round wire exclusively.
- B. is a removable appliance constructed entirely of precious metals.
- C. Was developed by Edward H. Angle.
- D. Was named after James T. Edgewise.

16. In a cephalometric radiograph, the images of structures on the right side of the head are magnified more than those on the left BECAUSE the right side of the head is further away from the film.

- A. The statement and reason are correct and related.
- B. The statement and reason are correct but NOT related.
- C. The statement is correct but the reason is NOT.
- D. The statement is NOT correct but the reason is accurate.
- E. NEITHER the statement NOR the reason is correct.

17. Which is NOT an indication for early orthodontic treatment?

- A. Crossbite with an associated functional shift
- B. Habits ✓
- C. Mild crowding ✓
- D. Protruding incisors

18. Which is NOT an appliance designed to produce growth modification?

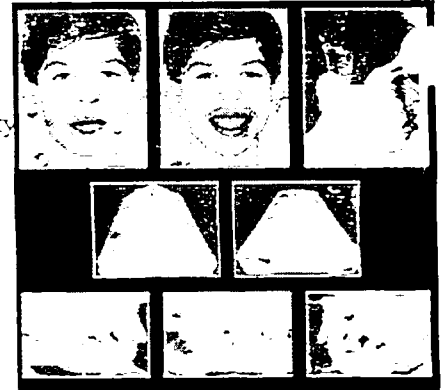
- A. Activator
- B. Chincup
- C. Hawley
- D. Headgear

19. Which growth curve do the maxilla and mandible follow?

- A. Genital
- B. Lymphatic
- C. Neural
- D. Somatic

20. The skeletal component of the malocclusion on the right is likely due to heredity and the dental component is due the environment.

- A. the first statement is true and the second false
- B. the first statement is false and the second true
- C. both statements are true
- D. both statements are false



21. A 10 year old male presented for a routine examination. The maxillary primary canine is solidly in place and you cannot palpate a labial bulge for the permanent canine. You should:

- A. Extract the primary canine
- B. Place a space maintainer
- C. Obtain a periapical radiograph to determine where the permanent canine is ✓
- D. A & B
- E. A & C

22. The distance the maxillary incisors are ahead of the mandibular incisors is known as the?

- A. Overbite
- B. Overjet
- C. Imbrication

23. The best way to evaluate the midlines would be

- A. Have the patient close in CO
- B. Reposition the mandible and evaluate for a shift from CO to CR
- C. Measure the arch length

- D. Evaluate the position of the incisors relative to the cephalogram
24. Which of the following is NOT one of Angle's classification of malocclusion categories?
- A. Class I
 - B. Class II div 1
 - C. Class II div 2
 - D. Class II div 3
 - E. Class III
25. Treatment objectives in orthodontics include all of the following except:
- A. Improved speech
 - B. Best in occlusion
 - C. Best esthetic results ✓
 - D. Permanence and stability of results ✓
26. The most prevalent group of malocclusions (Angle) is
- A. Class I.
 - B. Class II.
 - C. Class III.
 - D. none of the above. Prevalence of malocclusions differs among localities.
27. Excessive orthodontic force used to move a tooth may
- A. cause hyalinization.
 - B. cause undermining resorption.
 - C. crush the periodontal ligament.
 - D. All of the above
 - E. Only (A) and (C) above
28. During bodily movement of a tooth toward the lingual, which of the following are found on the root surface of the lingual alveolar wall?
- A. Osteoblasts
 - B. Osteoclasts
 - C. Ameloblasts
 - D. Cementoclasts
 - E. Plasma cells
29. Types of bone formation include: ✓
- A. Intramembraneous ossification
 - B. Interstitial ossification
 - C. Endochondral ossification ✓
 - D. A & B
 - E. A & C
30. Tissues increase in size by
- A. Cellular hyperplasia
 - B. Cellular hypertrophy
 - C. Secretion of extracellular material
 - D. A & B
 - E. A & B & C

31. At birth, which of the following structures is nearest the size it will eventually attain in adulthood?
- A. Cranium
 - B. Mandible
 - C. Clavicle
 - D. Middle face
 - E. Nasal capsule
32. For a given force to initiate the cascade of biologic events required for tooth movement it must be present for how long according to Proffit:
- A. 4-6 seconds
 - B. 4-6 minutes
 - C. 4-6 hours
33. The duration of force as produced by orthodontic appliances may be classified as:
- A. integrated
 - B. continuous ✓
 - C. interrupted ✓
 - D. intermittent ✓
 - E. B,C,D
34. Which of the following is the LEAST common in the United States?
- A. Class I malocclusion
 - B. Class II malocclusion
 - C. Class III malocclusion
 - D. Normal occlusion
35. Which of the following CANNOT be reliably assessed from a set of orthodontic study casts?
- A. Amount of overjet ✓
 - B. Arch crowding ✓
 - C. Location of unerupted teeth ✓
 - D. Location of crossbites
 - E. Molar relation ✓
36. Basion is a midline point on the anterior border of foramen magnum. PNS is part of the palatine bone.
- A. The first statement is true; the second is false.
 - B. The first statement is false; the second is true.
 - C. Both statements are true.
 - D. Both statements are false.
37. Porion is a part of the
- A. ethmoid bone.
 - B. frontal bone.
 - C. occipital bone.
 - D. sphenoid bone.
 - E. temporal bone.

38. Which of the following cephalometric landmarks is a midline, i.e. an unpaired, structure?

- A. Gonion
- B. Orbitale
- C. Porion
- D. Pterygomaxillary fissure
- E. Sella

39. A child has a prognathic mandible when his teeth are in occlusion but a straight profile when his teeth are slightly apart. What is the most likely diagnosis?

- A. Anterior crossbite
- B. Anterior functional shift
- C. Class III malocclusion
- D. Facial pain

40. Premature loss of an upper or lower primary second molar almost always results in the loss of space for the unerupted bicuspid. A space maintainer is indicated whenever there has been premature loss of an upper or lower primary second molar.

- A. The first statement is true; the second is false.
- B. The first statement is false; the second is true.
- C. Both statements are true.
- D. Both statements are false.

41. In a growing child, an ankylosed tooth appears to "submerge" as adjacent, unaffected teeth continue their normal pattern of eruption. An ankylosed tooth cannot be moved orthodontically.

- A. The first statement is true; the second is false.
- B. The first statement is false; the second is true.
- C. Both statements are true.
- D. Both statements are false.

42. A malocclusion characterized by a basal bone disharmony is said to be skeletal in nature. A malocclusion characterized by crowded teeth is said to be dental in nature.

- A. The first statement is true; the second is false.
- B. The first statement is false; the second is true.
- C. Both statements are true.
- D. Both statements are false.

43. Which of the following is the most effective clasp for use on removable acrylic and wire appliances?

- A. Adams clasp
- B. Arrowhead clasp
- C. Ball clasp
- D. 'C' clasp

44. An individual with a small mandible would likely have a
- A. concave profile.
 - B. convex profile.
 - C. oblong profile.
 - D. straight profile.
45. Orthodontic treatment risks may include
- A. decalcification
 - B. caries
 - C. root resorption and/or blunting
 - D. gingival hyperplasia
 - E. all of the above
46. In classifying the occlusion (Class I,II,III) in a patient with premature primary molar loss, an additional observation to reinforce the initial evaluation should be
- A. midline relation.
 - B. incisor relation.
 - C. canine relation.
 - D. molar relation.
 - F. profile.
47. Orthodontic screenings are recommended by age 7 because
- A. Permanent first molars are often just erupting.
 - B. Accurate evaluation of anterior posterior jaw relations can be made
 - C. Transverse and/or functional shifts can be detected
 - D. All of the above
48. The best plier for activation of orthodontic springs is a
- A. Bird beak plier
 - B. Hollow Chop plier
 - C. Arch contouring plier
 - E. Steiner plier
49. Handwrist radiographs are used to assess
- A. Assessing skeletal age
 - B. Determining growth potential
 - C. Evaluating facial proportions
 - D. B & C
 - E. All of the above
50. The most common uses of removable appliances include all of the following except:
- A. Orthodontic retention
 - B. Intrusion of teeth
 - C. Growth modification
 - D. Minor tooth movement limited to tipping
51. Skull & midface deformities due to premature closing of skull sutures include all of the following except:
- A. Apert syndrome
 - B. Crouzon syndrome
 - C. Pierre Robin syndrome

52. The optimal time to employ an orthodontic appliance that takes advantage of growth is during

- A. late primary dentition.
- B. early mixed dentition.
- C. late mixed dentition.
- D. early permanent dentition.

53. The appliance to the right is known as a

- A. Quad helix
- B. Twin block
- C. Herbst appliance
- D. Hawley appliance

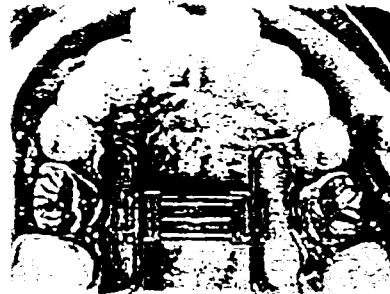


54. The orthodontic appliance in question 53 is used to

- A. Correct crossbites
- B. Correct Class II malocclusions
- C. Retain orthodontic corrections

55. The appliance to the right is known as a

- A. fixed palatal expander
- B. Invisaligner
- C. Hawley appliance
- D. Arnold appliance



56. The orthodontic appliance in question 55 is used to

- A. Correct maxillary crossbites
- B. Correct Class II malocclusions
- C. Retain orthodontic corrections

57. One activation of the screw (1/4 revolution) in question 55 is equivalent to

- A. .25 mm
- B. .50 mm
- C. .75 mm
- D. 1 mm

58. The orthodontic auxiliary on the right is a

- A. Power O
- B. Elastic
- C. Separator

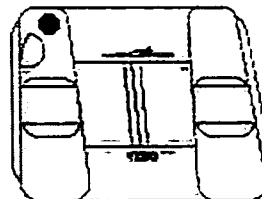


59. The auxiliary in question 58 is used prior to

- A. Banding teeth
- B. Bonding teeth
- C. Flourishing teeth

60. The slot size in bracket to the right is normally

- A. .018 inches
- B. .022 inches
- C. either A or B
- D. neither A or B



61. The bracket in question 60 could fit which tooth:

- A. Lower right central incisor
- B. Upper right central incisor
- C. Upper left central incisor
- D. Lower left central incisor

62. The plier to the right is used to

- A. Cut wire
- B. Bend wire
- C. Remove bands



63. Sexual development in girls occurs two years earlier than in boys. Progesterone specifically promotes female sexual development.

- A. Both statement and reason are correct and related.
- B. Both statement and reason are correct but NOT related.
- C. The statement is correct but the reason is NOT.
- D. The statement is NOT correct but the reason is an accurate statement.
- E. NEITHER statement nor reason is correct.

64. The mixed dentition analysis which measures the combined MD width of the lower incisors to predict the MD sizes of the unerupted canines and premolars from prediction tables for both arches is

- A. Hixon Oldfather
- B. Moyers
- C. Tanaka and Johnston
- D. Staley-Kerber

65. When doing a space analysis, the "space available" is dependent on the position of the lower incisors being in dynamic equilibrium.

- A. True
- B. False



66. The appliance on the right is used

- A. in the treatment of Class III malocclusions
- B. in the treatment of Class II malocclusions
- C. in the treatment of Class I malocclusions

67. This appliance in Question 66 is called a

- A. headgear
- B. Hilgers appliance
- C. Facemask or reverse pull headgear
- D. Frankel Appliance

68. Which of the following is not a crossbite classification for diagnostic purposes

- A. Skeletal
- B. Juvenile
- C. Dental
- D. Functional

69. Clinical adjustments for removable appliances are usually at 4-6 week intervals. What adjustments are typically required.

- A. Clasp adjustment
- B. Spring adjustment
- C. Acrylic adjustment
- D. All of the above

70. If a 7-year-old patient loses a primary mandibular canine about the same time the adjacent lateral incisor is erupting or shortly thereafter, the dentist should be alert to the possibility of

- A. a tongue habit.
- B. a developing crossbite.
- C. early eruption of the permanent canine.
- D. crowding of the mandibular anterior teeth.

71. Premature exfoliation of a primary mandibular canine is most often the sequela of which of the following?

- A. Caries
- B. Trauma
- C. Serial tooth extraction
- D. Arch length deficiency

72. Primary mandibular canines are absent in a 7-year-old child who, otherwise, has a normal complement of teeth. Caries incidence is low. Which of the following is the most probable cause for the missing canines?

- A. Both canines were traumatically avulsed.
- B. Both canines are congenitally missing
- C. Both canines were extracted by the child's previous dentist because of caries.
- D. The erupting mandibular lateral incisors caused abnormal resorption of the canine roots with subsequent early exfoliation of these teeth.

73. Refer to the photo on the right; the lack of eruption of the deciduous molars is likely due to:

- a. ankylosis
- b. space loss
- c. lateral tongue thrust
- d. A & B
- e. A&C



74. Premature exfoliation of a primary canine may indicate

- A. an arch length excess.
- B. an arch length deficiency.
- C. a skeletal malocclusion.
- D. none of the above.

75. The 8 year old male patient pictured to the right has a(n)



- A. Normal bite
- B. Deep bite
- C. Openbite
- D. Crossbite
- E. C & D

76. Racial differences affect the incidence of malocclusion. In general, the incidence of malocclusion in an inbred population relative to a heterogeneous population is

- A. much higher
- B. higher
- C. about the same
- D. lower
- E. much lower

77. Which of the following is NOT an Orthodontic treatment modality for skeletal malocclusions?

- A. Growth modification
- B. Centric positioning
- C. Surgery
- D. Camouflage

78. Andrew's 6 keys describe:

- A. Framework for normal occlusion
- B. Prescription for archwire fabrication
- C. Features desirable in retainer design
- D. Ideal profile features

79. The cephalometric landmark A point is located on which facial bone?

- A. Mandible
- B. Nasal
- C. Maxilla
- D. Frontal

80. If a patient in the mixed dentition stage has a very large mandible, he would probably also have a:

- A. mesial step.
- B. distal step.
- C. flush terminal plane until a late mesial shift.

81. Excessive orthodontic force used to move a tooth may

- A. cause hyalinization.
- B. cause undermining resorption.
- C. crush the periodontal ligament.
- D. All of the above
- E. Only (A) and (C) above

82. These auxiliaries are used to

- A. Reduce friction on a Herbst appliance
- B. Tie archwires to brackets
- C. Hook headgear on modules
- D. Keep cement out of bracket slots

83. The appliance on the right is called a:

- a. Herbst appliance
- b. Nance button
- c. Transpalatal bar
- d. Hawley appliance



84. The most common use(s) for this appliance in question 83 is

- A. Reinforce anchorage
- B. Space maintenance
- C. Holding a crossbite correction
- D. All of the above

85. During which type of tooth movement should the lightest forces be used?

- A. Tipping
- B. Translation
- C. Intrusion
- D. Rotations
- E. Extrusion

86. Tooth movement is a event mediated primarily by:

- A. Orthodontic forces
- B. Periodontal membrane
- C. Osteoblasts
- D. Cytokines

87. Leeway space refers to the mesial-distal difference between the unerupted incisors and the deciduous teeth they replace.

- A. True
- B. False

88. Incisor liability refers to the mesial-distal difference between the unerupted incisors and the deciduous teeth they replace.

- A. True
- B. False

89. A Bolton analysis is done to determine the tooth size ratios of the maxillary teeth relative to the mandibular teeth.

- A. True
- B. False

90. Which of the following is related to reciprocal anchorage in orthodontic mechanical

- A. Tipping a tooth
- B. Extraoral force
- C. Bodily movement of a tooth
- D. Equal and opposite forces

91. The condition of excessive protrusion of the incisors resulting in a patient's lips being separated by 3-4 mm when at rest is known as:

- A. fat lip syndrome
- B. cheilitis
- C. lip incompetence
- D. bulbous lip

92. The patient to the right might best be described as

- A. brachycephalic/europrosopic
- B. mesocephalic/mesoprosopic
- C. dolichocephalic/leptosopic.
- D. dinaric

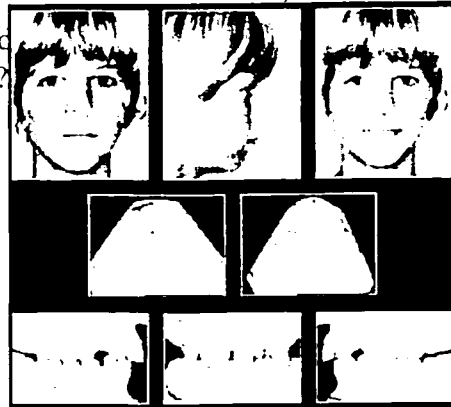


93. Space analysis requires a comparison between
- A. SNA and SNB
 - B. Space available and space required.
 - C. Curve of Spee and Curve of Wilson.
 - D. Overbite and overjet
94. Lip bumpers are used in the mixed dentition to enhance arch development and are attached to first molars.
- A. The first statement is true. the second false
 - B. The first statement is false. the second true
 - C. Both statements are true
 - D. Both statements are false
95. Classes of drugs which may interfere with tooth movement include all of the following except:
- A. Bisphosphonates (Fosamax)
 - B. Prostaglandin inhibitors (indomethacin)
 - C. Tricyclic antidepressants
 - D. Insulin
96. Early closure of a cranial suture is termed:
- A. Syndactaly
 - B. Synostosis
 - C. Synovial fusion
 - D. Supraunion
97. Variable(s) for controlling stiffness of an archwire are
- A. wire biocompatibility
 - B. physical size of the wire
 - C. composition of the wire
 - D. A & B
 - E. B & C
98. Which of the following is true of NiTi archwires:
- A. They are useful in the intermediate and end stages of treatment when high wire deflections are no longer necessary.
 - B. They are frequently used in the labial bows of Hawley retainers
 - C. They are used in clinical situations which require large deflections of an archwire as in initial alignment.
 - D. They are useful in endodontic instruments but rarely in orthodontic archwires
99. When an uncontrolled tipping force is applied to the crown of a single-rooted tooth with healthy periodontium, the fulcrum (center of resistance) is usually located
- A. at the apex.
 - B. at the cervical line.
 - C. 5 mm. beyond the apex.
 - D. $1/3 - 1/2$ of the root length from the apex.
100. Clinical adjustments for removable appliances are usually at 4-6 week intervals. What adjustments are typically required.
- A. Clasp adjustment
 - B. Spring adjustment
 - C. Acrylic adjustment
 - D. All of the above

Principles of Orthodontics II Midterm

March 2, 1999 *March 14, 2000*

Name John Putridge



1. What type of malocclusion is represented by the photos and models of this patient?

- A. Class I
- B. Class II div 1
- C. Class II div 2 (Two Lower)
- D. Class III

2. The patient's profile is:

- A. Convex
- B. Concave
- C. Straight

3. This case will probably need require

- A. Orthodontics
- B. Surgery
- C. Growth modification
- D. A & B
- E. A & C

D. Difficult
50-75 - Tipping
100-150 - Translation
15-25 - Extrusion (High arch)
75-125 - Retraction
50-100 - Extrusion

4. The skeletal component of this malocclusion is likely due to heredity and the dental component is due the environment.

- A. the first statement is true and the second false
- B. the first statement is false and the second true
- C. both statements are true
- D. both statements are false

5. The distance the maxillary incisors are ahead of the mandibular incisors is known as the?

- A. Overbite \rightarrow
- B. Overjet \rightarrow
- C. Imbrication

6. The best way to evaluate the midlines would be

- A. Have the patient close in CO
- B. Reposition the mandible and evaluate for a shift from CO to CR
- C. Measure the arch length
- D. Evaluate the position of the incisors relative to the cephalogram

7. If the ANB is measure to be 7 degrees this would support the skeletal classification of

- A. Class I
- B. Class II
- C. Class III

3 *1* *2*
 $\frac{3}{7.4}$ $\frac{1}{7.4}$ $\frac{2}{7.4}$

8. A diastema less than 2 mm is normal before the eruption of the maxillary canines.
A. True
B. False

9. If this patient's problem list included bilateral posterior crossbite, crowding and incorrect molar relationship the first problem that should be addressed is?
A. Crossbite correction
B. Alleviation of crowding
C. Molar correction

10. This patient's malocclusion may be corrected by
A. Comprehensive orthodontics
B. Limited orthodontics
C. This patient does not have a malocclusion

11. The father of modern day orthodontics is:
A. Pierre Fauchard
B. Kingsley
C. EH Angle
D. None of the above

12. A cephalometric analysis
A. Only evaluates the patient's growth potential
B. Only evaluates the dentition
C. Is a collection of numbers that describes the shape and relationship of the craniofacial components and their relative positions
D. Is taken at a distance of 5 feet in a standardized head holder
E. C & D

13. The cephalogram on the right is consistent with
A. Class I relationship
B. Class II relationship
C. Class III relationship



14. Space maintenance with a lingual arch would be an example of
A. Preventative Orthodontics
B. Interceptive Orthodontics
C. Comprehensive Orthodontics
D. Reconstructive Orthodontics (*Surgery*)

15. Correction of a posterior crossbite in an 8 year old female would be an example of
A. Preventative Orthodontics
B. Interceptive Orthodontics
C. Comprehensive Orthodontics
D. Reconstructive Orthodontics

16. For a given skeletal malocclusion the treatment options may include:
- A. Growth modification
 - B. Orthodontic camouflage
 - C. Orthognathic surgery
 - D. All of the above

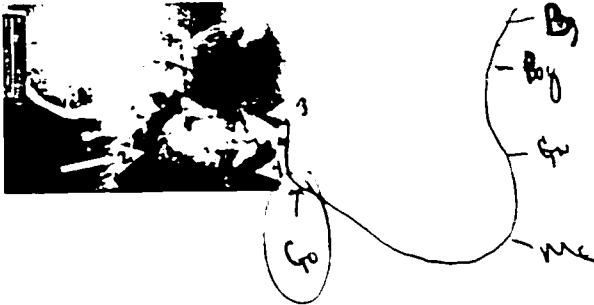


Figure 2

17. The cephalometric pointed indicated by the arrow 1 and described as the midpoint of the cavity of sella turcica is

- A. Sella → *STABLE also*
- B. Orbitale
- C. Gonion
- D. A Point
- E. B Point

18. The cephalometric pointed indicated by the arrow 2 and described as the center of the inferior contour of the mandibular angle is

- A. Sella
- B. Orbitale
- C. Gonion
- D. A Point
- E. B Point

19. The cephalometric pointed indicated by the arrow 4 and the inner most point on the contour of the premaxilla between ANS and the upper incisor tooth.

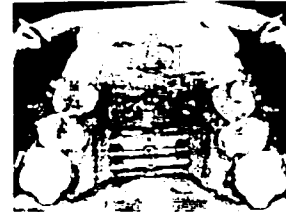
- A. Sella
- B. Orbitale
- C. Gonion
- D. A Point
- E. B Point

20. The cephalometric pointed indicated by the arrow 5 and the innermost point on the contour of the mandible between the incisor tooth and the bony chin.

- A. Sella
- B. Orbitale
- C. Gonion
- D. A Point
- E. B Point

21. When used alone the appliance pictured to the right in figure 3 is used for

- A. palatal expansion in growing patients
- B. palatal expansion in nongrowing patients
- C. to obtain primarily dental movement
- D. to correct skeletal problems in the mandible



22. One complete revolution of the screw in figure 3 is

- A. 1 mm
- B. 2 mm
- C. 3mm
- D. 4mm

23. The appliance in figure 3 is an example of a

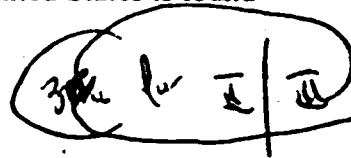
- A. intermittent force and reciprocal anchorage
- B. interrupted force and stationary anchorage
- C. continuous force and reciprocal anchorage
- D. continuous force and stationary anchorage

24. Andrews describes how many dental attributes commonly found in ideal occlusions

- A. 4
- B. 5
- C. 6
- D. 7

25. Ideal occlusion in the adult population of the United States is found

- A. often (80-90 per cent).
- B. 50-60 per cent of the time.
- C. 20-30 per cent of the time.
- D. very rarely (0-5 per cent).



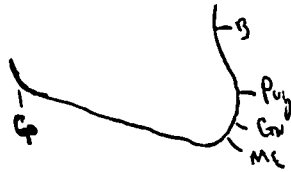
26. Angles classification of malocclusion includes how many groups

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

27. Orthodontic treatment risks may include
- A. decalcification
 - B. caries
 - C. root resorption and/or blunting
 - D. gingival hyperplasia
 - E. all of the above
28. In classifying the occlusion (Class I,II,III) in a patient with premature primary molar loss, an additional observation to reinforce the initial evaluation should be
- A. midline relation.
 - B. incisor relation.
 - C. canine relation.
 - D. molar relation.
 - F. profile.
29. Orthodontic screenings are recommended by age 7 because
- A. Permanent first molars are often just erupting,
 - B. Accurate evaluation of anterior posterior jaw relations can be made
 - C. Transverse and/or functional shifts can be detected
 - D. All of the above
30. Certain types of malocclusion in the young growing child may adversely affect the
- A. Position of the teeth and the associated alveolar processes
 - B. Growth and development of certain facial bones resulting in disharmony of facial features.
 - C. Neither (A) nor (B) above
 - D. Either (A) or (B) above
31. Cephalometrics is an aid in orthodontic treatment planning because it provides information about the;
- a. relationship of maxillary and mandibular basal bone to the cranial base.
 - b. relationship of maxillary anterior teeth to the maxillary basal bone.
 - c. relationship of mandibular anterior teeth to the mandibular basal bone.
 - d. relationship of maxillary and mandibular teeth to one another.
 - e. progress of orthodontic treatment.
- A. (a), (b) and (c) only
 - B. (a), (b), (c) and (d)
 - C. (a), (d) and (e)
 - D. (b), (c) and (e)
 - E. All of the above

32. The most anterior point on the contour of the chin is known as

- A. A point
- B. B point
- C. Sella
- D. Pogonion



33. The sphenoid, ethmoid and occipital bones originate from what type of bone formation?
SED = ENDO

- A. Intermembraneous
- B. Endochondral
- C. Interconnective

34. The frontal, parietal, and nasal bones originate from what type of bone formation?

- A. Intermembraneous F. P. 1 N.
- B. Endochondral
- C. Interconnective

35. The mandible grows primarily by growth at the

- A. symphysis and condyles.
- B. posterior border of the ramus and the alveolar crest.
- C. condyles and lateral border of the corpus.
- D. condyles and posterior border of the ramus.
- E. symphysis and posterior border of the ramus.

(Most on the condyle)

36. According to Proffit a unilateral crossbite in a preschool child is almost always the result of:

- A. skeletal asymmetry
- B. dental asymmetry
- C. symmetrically narrow maxilla with a functional shift.

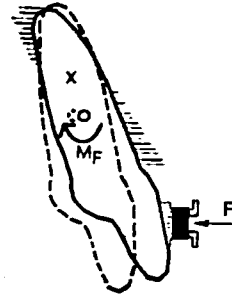
37. The best plier for activation of orthodontic springs is a

- A. Bird beak plier
- B. Hollow Chop plier
- C. Arch contouring plier
- E. Steiner plier

38. Handwrist radiographs are used to assess

- A. Assessing skeletal age
- X. Determining growth potential
- C. Evaluating facial proportions
- D. A & C
- E. All of the above

45. The force acting at the bracket in figure 5 produces:



Retraction

Retraction 75-125

- A. Tipping 50-75
- B. Translation 100-150
- D. Intrusion - 15-35

46. Bracket identification markings are usually placed on the?

- A. Mesial gingival tie wing
- B. Mesial incisal tie wing
- C. Distogingival tie wing
- E. Distalocclusal tie wing

(Dist tie wing)

47. Loss of alveolar height around a tooth does what to the tooth's center of resistance

- A. Moves it toward the tooth's apex
- B. Moves it away from the tooth's apex
- C. Does not change the tooth's center of resistance

48. The alveolus of a tooth receiving orthodontic force undergoes resorption on the

- A. Tension side of the force
- B. Compression side of the force
- C. Neither compression or tension

49. In terms of incidence of malocclusion, supervision of the child's development of occlusion is most critical between the ages

- A. 3-5 years.
- B. 6-10 years
- C. 11-16 years.

50. Among Americans, Angle Class II malocclusions occur

- A. rarely.
- B. in about 25 per cent of the population.
- C. in almost 50 per cent of the population.
- D. in more than 75 per cent of the population.

51. The incidence of malocclusion in the United States is more identifiable in 8-year-old children than in 4-year-old children because

- A. unfavorable muscle influences are expressed by age 8.
- B. permanent incisors erupt in a more procumbent position than do primary incisors.
- C. eruption of permanent incisors reveals tooth-arch length discrepancies.
- D. tooth size discrepancies become greater with age and are more noticeable.
- D. space loss becomes apparent after normal exfoliation of primary molars.

52. Patient cooperation in their orthodontic treatment is more likely with what kind of motivation?

- A. Internal,
- B. External
- C. Conditional
- E. Operant

53. child with congenital heart disease requires special treatment planning for dental care because of potential problems with

a. bleeding	b. local infection.
c. <u>systemic infection.</u>	d. enamel hypoplasia

- A. (a) only
- B. (a), (b) and (c)
- C. a and (c) only
- D. (c) only
- E. All of the above

54. Growth in the maxilla takes place in three planes:

- A. downward, forward and laterally.
- B. downward, forward and medially.
- C. upward, forward and laterally.
- D. downward, backward and laterally.

55. After approximately seven years of age, the mandible increases in size by

- a. generalized deposition of bone on its free surfaces.
 - b. condylar growth.
 - c. interstitial growth.
 - d. growth on posterior border of ramus.
 - e. deposition of bone on alveolar process.
- A. (a), (b) and (e)
 - B. (a), (c) and (d)
 - C. (b), (c) and (d)
 - D. (b), (d) and (e)
 - E. (c), (d) and (e)

56. Mandibular prognathism is usually considered to be

- A. inherited but could be acquired.
- B. acquired exclusively.
- C. inherited but could be the result of hypopituitarism.

(^(or) ① inherited ② acquired)

57. At birth, which of the following structures is nearest the size it will eventually attain in adulthood?

- A. Cranium
- B. Nasal capsule
- C. Middle face
- D. Mandible

58. How does growth of the cranial base generally relate in time to growth of the jaws?

- A. Precedes
- B. Follows
- C. Accompanies
- D. Initially follows then accompanies

59. The optimal time to employ an orthodontic appliance that takes advantage of growth is during

- A. late primary dentition.
- B. early mixed dentition.
- C. late mixed dentition.
- D. early permanent dentition.

60. A needle fragment embedded in the anterior border of the ramus of the mandible of a 6-year old child would

- A. soon become embedded more deeply as new bone covered it.
- B. soon become free in the soft tissue as resorption uncovered it.
- C. remain on the surface as the ramus was translated.
- D. stimulate formation of a bony protuberance at the site of the needle fragment.

61. In patients suffering from achondroplasia in which midfacial structures are most affected, one would expect to find which of the following malocclusions?

- A. Class I
 - B. Class II
 - C. Class III
 - D. Group 5
- (Hypoplasia of skull / midface) = Class III*

62. There is more adolescent growth spurt of the maxilla than of the mandible because lymphoid tissue in the nasopharynx decreases at puberty.

- A. Both statement and reason are correct and related.
- B. Both statement and reason are correct but NOT related.
- C. The statement is correct but the reason is NOT
- D. The statement is NOT correct but the reason is an accurate statement
- E. NEITHER statement nor reason is correct.

63. The cranial vault increases rapidly in size the first few years postnatally and completes approximately 90 per cent of its growth by 6 years of age. This growth is typical of which of the following types of tissue?

- A. Neural
- B. Dental
- C. Genital
- D. Lymphoid
- E. General (somatic)

64. Sexual development in girls occurs two years earlier than in boys because estrogen specifically promotes female sexual development.

- A. Both statement and reason are correct and related.
- B. Both statement and reason are correct but NOT related.
- C. The statement is correct but the reason is NOT.
- D. The statement is NOT correct but the reason is an accurate statement.
- E. NEITHER statement nor reason is correct.

65. Crossbites are often seen in the developing dentition in the molar region. Treatment should always be as follows:

- A. both molars should be moved equal amounts for correction.
- B. one molar should be moved the entire distance for correction.
- C. the possibility of functional interference and shift of the mandible should be considered.
- D. one molar should be extracted.

66. The major criterion to differentiate between a true Class III and a pseudo-Class III malocclusion is the

- A. existence of a forward shift of the mandible during closure.
- B. occlusal relationship between maxillary and mandibular first molars.
- C. presence of a bilateral crossbite.
- D. degree of anterior crossbite.

67. The magnitude of the moment of the force is equal to the

- A. Magnitude of the force multiplied by the linear distance from the center of rotation
- B. Magnitude of the force multiplied by its perpendicular distance from the center of resistance
- C. Magnitude of the force multiplied by the cross section of the archwire
- D. Magnitude of the force divided by its perpendicular distance from the center of resistance

68. The etiology of a maxillary midline diastema may be
- a mesiodens.
 - congenitally missing lateral incisors.
 - a tongue thrust habit.
 - a hypertrophied superior labial frenum.
- (a), (b) and (c)
 - (a), (b) and (d)
 - (a), (c) and (d)
 - (b), (c) and (d)
 - All of the above

69. Which of the following factors is most frequently responsible for congenital absence of teeth?

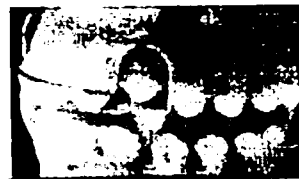
- Heredity
- An endocrine disturbance
- Lack of space in the arches
- A calcium-phosphorus imbalance

70. In making a diagnosis of ankylosis of a primary molar, which of the following points are of major importance?

- Radiographic absence of a periodontal shadow
 - Observation that the involved tooth is in infraocclusion
 - A difference in the percussion sound of the ankylosed tooth as compared with a normal tooth
 - Observation that the tooth has extruded beyond the occlusal plane
 - Radiographic observation that the succeeding permanent tooth apparently has no follicle
- (a) and (b)
 - (b) and (c)
 - (c) and (d) only
 - (a), (b) and (c)
 - (d) and (e) only

71. The appliance pictured to the right, Figure 6, is often used to modify growth. It is known as a

- Frankel Appliance
- Hawley Appliance
- Bionator Appliance
- Hilgers Appliance



72. The appliance in figure 6 is used primarily in the correction of which type of malocclusion?

- A. Class I
- B. Class II Div 1
- C. Class III

Handwritten note: Class II Div 1
→ Band

73. The type of force exerted by this appliance is classified as

- A. Continuous
- B. Interrupted
- C. Intermittent

74. The mixed dentition analysis which measures the combined MD width of the lower incisors to predict the MD sizes of the unerupted canines and premolars from prediction tables for both arches is

- A. Hixon Oldfather
- B. Moyers
- C. Tanaka and Johnston
- D. Staley-Kerber

75. When doing an accurate space analysis, the "space available" is dependent on the position of the lower incisors being in dynamic equilibrium.


- A. True
- B. False

76. For a given force to initiate the cascade of biologic events required for tooth movement it must be present for how long according to Profit:

- A. 4-6 seconds
- B. 4-6 minutes
- C. 4-6 hours

77. Tipping and intrusive mechanics concentrate forces in a localized areas and therefore utilize lower force levels than forces required for translation.

- A. True
- B. False

78. Premature exfoliation of a primary canine may indicate
- an arch length excess.
 - an arch length deficiency.
 - a skeletal malocclusion.
 - none of the above.
79. The stiffer an archwire the less its range.
- True
 - False
80. The amount of force delivered to an individual tooth is dependent on all of the following **except**:
- shape (round vs rect)
 - physical size
 - weight
 - composition
81. The appliance on the right (Figure 7) is used
- in the treatment of Class III malocclusions
 - in the treatment of Class II malocclusions
 - in the treatment of Class I malocclusions
- 
82. This appliance in figure 7 is called a
- headgear
 - Hilgers appliance
 - Protraction facemask
 - Frankel Appliance
83. The desired action of a lip bumper, when used in the mixed dentition, is to
- Inhibit mandibular/maxillary growth
 - Enhance arch development in the mixed dentition by removing muscular influences on the teeth
 - Amplify mandibular growth
 - Inhibit transverse development in dental arches
84. The purpose of employing loops and helices in wires in tooth-moving appliances is to
- provide a lighter force.
 - provide a longer lever arm.
 - lengthen the period between adjustment.

D. All of the above

85. The appliance to the right **Figure 8** is known as a

- A. Herbst appliance
- B. Frankel appliance
- C. Hilgers appliance



86. It is used primarily to treat

- A. Class I malocclusions
- B. Class II malocclusions
- C. Class III malocclusions

87. This appliance is best used during periods of active growth

- a. True
- b. False

88. The lingual arch is an example of preventative orthodontics and can have three dimension effects.

- A. Both statements are correct.
- B. The first statement is correct but the second is false.
- C. The first statement is false but the second is true
- D. NEITHER statement is correct.

89. Posterior crossbites may be classified as any of the following except

- A. Major NOT
- B. Skeletal
- C. Dental
- D. Functional

90. List the sequencing of comprehensive orthodontics as described in class are

- ① Leveling
- ② Space consolidation
- ③ Alignment
- ④ Finishing and detailing
- ⑤ Retention

- ① Alignment
- ② Leveling
- ③ Space Consolidation
- ④ Finishing
- ⑤ Retention

ALS(FR)

- A. 3,2,1,4,5
- B. 2,1,3,4,5
- C. 5,3,1,2,4
- D. 3,1,2,4,5

ALS (FR)

91. If the initial malocclusion appears as illustrated in Figure 9 first wire should be



- A. Stiff and strong
- B. Flexible and have a large range
- C. Have a high load deflection rate
- D. Have a low load deflection rate
- E. Both B & D

Rawo

92. The best choice for an initial alignment wire in Figure 9. would be

- A. .016 stainless steel
- B. .016 Nickel titanium
- C. .017 x .026 stainless steel
- D. .022 x .025 stainless steel

93. The most common bracket size(s) is (are)

- A. .016 x .022
- B. .018 x .025
- C. .022 x .025
- D. A & B
- E. B & C

94. The appliance pictured in figure 10 is



- 1. Hilgers appliance
- 2. Transpalatal bar
- 3. Nance appliance
- 4. Saggital appliance

95. The purpose(s) of the appliance include

- A. Space maintenance
- B. Anchorage support
- C. Space closure
- D. A & B
- E. B & C

96. A simple definition for anchorage is the resistance to tooth movement.

- A. True
- B. False

97. The anchorage best described when a group of teeth are used to help move a single tooth is:
- A. Reciprocal
 - B. Reinforced
 - C. Stationary
98. Separators used prior to banding should be left in place
- A. 2-7 days
 - B. 2 weeks
 - C. 4 weeks
 - D. 5 weeks
99. Palatal expansion and sutural opening can be used with predicatable success during which age ranges?
- A. 10-20
 - B. 8-15
 - C. up to age 35
100. Bracket identification marks are normal placed on:
- A. The mesiogingival wing
 - B. The distogingival wing
 - C. On the lingual pad
 - D. On the bracket base

Principles of Orthodontics II Midterm 1999

March 12th

Name _____

The following questions are related to the pretreatment photographs and cephalometric tracing of a 7.0 year old female.

1. The patient's profile may be described as
 - A. Convex
 - B. Orthognathic
 - C. Concave
 - D. Prognathic
2. The molar relationship is
 - A. Class I
 - B. Class II
 - C. Class III
3. The anterior relationship is best described as a(n)
 - A. Normal bite
 - B. Open bite
 - C. Deepbite
4. The best way to evaluate the midlines would be
 - A. Have the patient close in CO
 - B. Reposition the mandible and evaluate for a shift from CO to CR
 - C. Measure the arch length deficiency
 - D. Evaluate the position of the lower incisors on the cephalogram
5. The crossbite of tooth #3 is
 - A. Skeletal and related to a posterior crossbite
 - B. Dental and related to the ectopic eruption of tooth #30
 - C. Is dental in nature
 - D. Normal and related to the stage of eruption
6. The intersection of the ramal plane and mandibular plane is known as?
 - A. Orbitale
 - B. B point
 - C. A point
 - D. Gonion
7. The FMA indicates that this patient has a high angle mandibular plane
 - A. True
 - B. False
8. Based on a qualitative assessment the Angle skeletal classificaton of this patient is most likely to be?
 - A. Class I
 - B. Class II
 - C. Class III

9. The line from sella extended to gnathion is known as the
- A. Mandibular plane
 - B. Y axis
 - C. Frankfort horizontal
 - D. Occlusal plane
10. The etiology of the anterior openbite could be the result of
- A. Tongue thrust
 - B. Thumb habit
 - C. Chronic allergic rhinitis
 - D. Skeletal vertical maxillary excess
 - E. all of the above

Proceed with the remainder of the exam.

11. A syndrome characterized by generalized failure of eruption, multiple supernumerary teeth, and the absence of clavicles is known as
- A. Treacher Collins
 - B. Cleidocranial dysplasia
 - C. Marfan syndrome
 - D. Osteogenesis imperfecta
12. A condition characterized by discolored teeth; hypoplasia or hypocalcification of enamel; and anterior openbite:
- A. Klinefelter syndrome
 - B. Cleidocranial dysostosis
 - C. Apert's syndrome
 - D. Amelogenesis imperfecta
13. The force acting at the bracket in figure 1 produces:

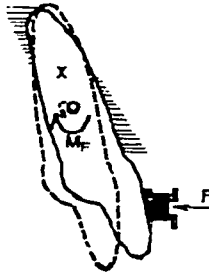


fig 1

- A. Tipping
 - B. Translation
 - C. Intrusion
14. How much force typically is required for this type of tooth movement
- A. 50-75 grams
 - B. 100-150 grams
 - C. 75-125 grams
 - D. 15-25 grams
 - E. 50-100 grams

15. The **moment of the force** in figure 1 is a measure of the tendency of the tooth to rotate about its center of resistance.

- A. True
- B. False

16. The magnitude of the **moment of the force** is equal to the

- A. Magnitude of the force multiplied by the linear distance from the center of rotation
- B. Magnitude of the force multiplied by its perpendicular distance from the center of resistance
- C. Magnitude of the force multiplied by the cross section of the archwire
- D. Magnitude of the force divided by its perpendicular distance from the center of resistance

17. When a simple tipping force is applied to the crown of a single-rooted tooth, the center of rotation is usually located

- A. at the apex.
- B. at the cervical line.
- C. 5 mm. beyond the apex.
- D. one-third the root length from the apex.
- E. two-thirds the root length from the apex.

18. **Figure 2** illustrates the proper moment to force ratio which results in what kind of tooth movement?

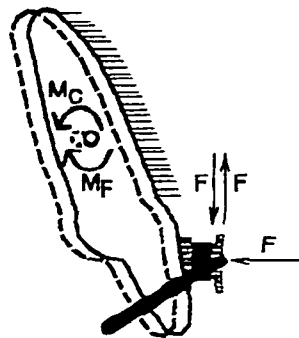


figure 2

- A. Tipping
- B. Intrusion
- C. Translation
- D. Extrusion

19. How much force typically is required for this type of tooth movement

- A. 50-75 grams
- B. 100-150 grams
- C. 75-125 grams
- D. 15-25 grams
- E. 50-100 grams

20. Types of bone formation include:

- A. Intramembraneous ossification
- B. Interstitial ossification
- C. Endochondral ossification
- D. A & B
- E. A & C

21. Bone grows appositionally while cartilage grows both appositionally and interstitially.
- The first statement is true, the second false
 - The first statement is false, the second true
 - Both statements are true
 - Both statements are false
22. Growth in the maxilla takes place in three planes:
- downward, forward and laterally.
 - downward, forward and medially.
 - upward, forward and laterally.
 - downward, backward and laterally.
23. At birth the greatest dimension of the face is
- width.
 - depth.
 - height.
 - All dimensions are equal.
24. Growth is defined as increase in size, while development is the process of cell hypertrophy.
- The first statement is true, the second false
 - The first statement is false, the second true
 - Both statements are true
 - Both statements are false
25. Tissues increase in size by
- Cellular hyperplasia
 - Cellular hypertrophy
 - Secretion of extracellular material
 - A & B
 - A & B & C
26. Certain types of malocclusion in the young growing child may adversely affect the
- position of the teeth and the associated alveolar processes.
 - growth and development of certain facial bones resulting in disharmony of facial features.
 - Neither (A) nor (B) above
 - Either (A) or (B) above
27. After approximately seven years of age, the mandible increases in size by
- generalized deposition of bone on its free surfaces.
 - condylar growth.
 - interstitial growth.
 - growth on posterior border of ramus.
 - deposition of bone on alveolar process.
- (a), (b) and (e)
 - (a), (c) and (d)
 - (b), (c) and (d)
 - (b), (d) and (e)
 - (c), (d) and (e)
28. In orthodontics **anchorage** refers
- A type of tooth movement

- B. Hyalanization of the periodontal ligament
- C. Resistance to displacement
- D. Placement of an implant

29. In orthodontic repositioning of teeth, which of the following increase resistance to unwanted tooth movement?

- a. Attachment to a greater number of teeth
 - b. Use of .018 round wire in a .022 rectangular slot
 - c. Wider force distribution in the periodontal ligament
 - d. Use of extraoral force
- A. (a), (b), and (c)
 - B. (a), (c), and (d)
 - C. (a) and (d) only
 - D. (b) and (c) only
 - E. All of the above

30. Simple diastema closure is an example of what type of anchorage

- A. Reciprocal
- B. Stationary
- C. Reinforced

31. If an active lingual arch were placed to correct a bilateral crossbite, the type of anchorage used would be

- A. simple.
- B. complex.
- C. compound.
- D. reciprocal.
- E. stationary.

32. Which of the following orthodontic movements of teeth are most difficult to accomplish?

- a. Tipping
 - b. Rotation
 - c. Intrusion
 - d. Extrusion
 - e. Translation
- A. (a) and (b)
 - B. (a) and (c)
 - C. (c) and (e)
 - D. (b) and (d)
 - E. (b) and (e)

33. Which of the following are essential to the design of a removable orthodontic appliance?

- a. Retention
 - b. Anchorage
 - c. Activation
- A. (a) and (b)
 - B. (a) and (c)
 - C. (b) and (c)
 - D. All of the above

34. The major source of anchorage in a maxillary Hawley appliance is the

- A. molar clasp.
- B. labial bow.
- C. acrylic portion.
- D. interproximal clasp.
- E. bracket of the band.

35. Tooth movement is dependent on the presence of a periodontal ligament.

- A. True
- B. False

36. Stiffness of orthodontic wire is a function of

- A. length of the wire segment.
- B. diameter of the wire segment.
- C. alloy composition.
- D. all of the above.
- E. none of the above.

37. Which of the following is related to reciprocal anchorage in orthodontic mechanics

- A. Tipping a tooth
- B. Extraoral force
- C. Bodily movement of a tooth
- D. Equal and opposite forces

38. Loops and helices are used in arch wires primarily to

- A. align teeth.
- B. increase force of the wires.
- C. increase flexibility of the wires.
- D. hold soft tissues away from orthodontic brackets.

39. A 7 year old male with a Class I occlusion presented with tooth #8 erupting into an anterior crossbite. The overbite was 1 mm. The best appliance to correct this problem would be?

- A. no treatment is indicated at this time
- B. removable Hawley with a finger spring
- C. a palatal expansion appliance
- D. a lingual arch

40. The most stable area from which to evaluate craniofacial growth is the

- A. nasal floor.
- B. cranial vault.
- C. occlusal plane.
- D. nasomaxillary complex.
- E. anterior cranial base.

41. Between 6 years and 12 years of age space is obtained in the mandible for the second molar by

- A. growth at the anterior surface of the mandible.
- B. anterior movement of all of the erupted teeth.
- C. resorption of bone along the anterior border of the ramus.
- D. widening of the mandible.
- E. shedding of the first permanent molar.

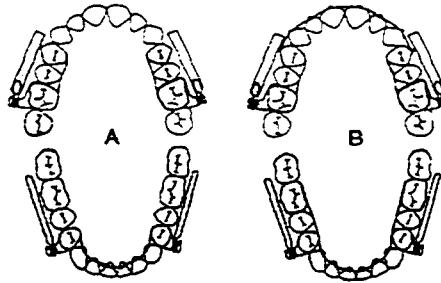
42. Removable appliances are best used with which type of tooth movement

- A. Tipping
- B. Extrusion
- C. Intrusion
- D. Rotation

43. What are/is the major category(ies) of removable functional appliances according to Proffit?

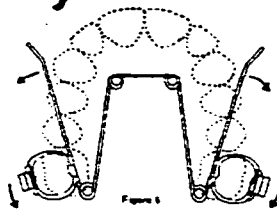
- A. passive tooth-borne
- B. active tooth born
- C. tissue borne
- D. B & C
- E. A, B & C

44. The type of functional appliance depicted below is known as what?



- A. Bionator
- B. Herbst
- C. Twin Block
- D. Frankel

45. The fixed expansion device depicted below is know as a what?



- A. Sagittal
- B. Quad helix
- C. Swartz
- D. Porter appliance

46. One of the most useful and versatile clasps which simultaneously engages the MB and DB uncuts of individual teeth is known as:

- A. Jackson clasp
- B. Balters clasp
- C. Adams clasp
- D. Andresan clasp

47. In general, the greatest increment of facial growth occurs between

- A. 4 and 8 years of age.
- B. 8 and 12 years of age.
- C. 12 and 16 years of age.
- D. 16 and 20 years of age.

48. If a child's teeth did not form, this would mostly affect the growth of the
 A. alveolar bone.
 B. whole face.
 C. mandible.
 D. Maxilla.
49. How does growth of the cranial base generally relate in time to growth of the jaws?
 A. Precedes
 B. Follows
 C. Accompanies
 D. Initially follows then accompanies
50. An early prepuberal growth spurt indicates
 A. a longer treatment time.
 B. a fast maturing child.
 C. a slow maturing child.
 D. nothing of interest.
 E. an endocrine dysfunction, such as hyperthyroidism.
51. In the mandible, the main growth site is in the
 A. gonial angle.
 B. condylar cartilage.
 C. posterior border of the ramus.
 D. inferior and lateral aspects of the body of the mandible.
52. Primate spaces in the primary dentition are observed between
 a. maxillary canines and first molars.
 b. maxillary canines and lateral incisors. -
 c. mandibular canines and first molars. -
 d. mandibular canines and lateral incisors.
 A. (a) and (c)
 B. (a) and (d)
 C. (b) and (c)
 D. (b) and (d)
 E. (d) only
53. Which of the following factors is most frequently responsible for congenital absence of teeth?
 A. Heredity
 B. An endocrine disturbance
 C. Lack of space in the arches
 D. A calcium-phosphorus imbalance
54. There is more adolescent growth spurt of the maxilla than of the mandible because lymphoid tissue in the nasopharynx decreases at puberty.
 A. Both statement and reason are correct and related.
 B. Both statement and reason are correct but NOT related.
 C. The statement is correct but the reason is NOT
 D. The statement is NOT correct but the reason is an accurate statement
 E. NEITHER statement nor reason is correct.
55. How does mandibular growth in boys ordinarily compare with that in girls?
 A. Is sustained over a longer period of time in girls

- B. Is sustained over a longer period of time in boys
 C. Occurs at the same chronologic age in both sexes
 D. Occurs two years earlier in boys than in girls
56. Cartilage differs from bone in that cartilage increases in size by
- A. apposition
 B. sutural expansion
 C. interstitial growth
 D. selective resorption
 E. endosteal remodeling
57. The most pertinent information gained from serial cephalometric head films is
- A. ultimate growth potential
 B. incidence of dental anomalies
 C. amount and direction of growth
 D. sequence of eruption of permanent teeth
 E. comparison with mean dentofacial pattern
58. Sexual development in girls occurs two years earlier than in boys because estrogen specifically promotes female sexual development.
- A. Both statement and reason are correct and related.
 B. Both statement and reason are correct but NOT related.
 C. The statement is correct but the reason is NOT.
 D. The statement is NOT correct but the reason is an accurate statement.
 E. NEITHER statement nor reason is correct.
59. There is more adolescent growth spurt of the maxilla than of the mandible because lymphoid tissue in the nasopharynx decreases at puberty.
- A. Both statement and reason are correct and related.
 B. Both statement and reason are correct but NOT related.
 C. The statement is correct but the reason is NOT
 D. The statement is NOT correct but the reason is an accurate statement
 E. NEITHER statement nor reason is correct.
60. Sites of vertical growth of the face include all of the following EXCEPT
- A. nasal cavity.
 B. orbital cavity.
 C. alveolar process.
 D. midpalatal suture.
 E. condyles of the mandible.
61. How does growth of the cranial base generally relate in time to growth of the jaws?
- A. Precedes
 B. Follows
 C. Accompanies
 D. Initially follows then accompanies
62. Scammon's growth curves depict
- A. Sequence of tooth eruption
 B. Differential maturation of different body tissues
 C. Male/ female growth differential
 D. Interstitial growth of the mandible

63. Posterior crossbite corrections should be retained for a minimum of how many months?

- A. 1-2 months
- B. 2-3 months
- C. 3-4 months
- D. 5-6 months.

66. According to Proffit maxillary expansion by midpalatal sutural opening is not 100% predicatable after what age?

- A. 10
- B. 15
- C. 20
- D. 25

67. Which of the following is the proper sequence of procedures for molar uprighting

- a. Band.
 - b. Bridge.
 - c. Perform periodontal surgery.
 - d. Separate.
 - e. Upright.
- A. (a), (d), (c), (e), (b)
 - B. (c), (a), (e), (d), (b)
 - C. (c), (d), (a), (e), (b)
 - D. (d), (a), (e), (b), (c)
 - E. (d), (a), (e), (c), (b)

68. Rank the following permanent teeth according to their ability to provide anchorage, greatest to least

- a. Maxillary central incisor
 - b. Maxillary canine
 - c. Maxillary first molar ←
 - d. Mandibular incisor
- A. (b), (c), (a), (d)
 - B. (c), (b), (a), (d)
 - C. (d), (b), (d), (a)
 - D. (d), (a), (b), (c)

69. The etiology of a maxillary midline diastema may be

- a. a mesiodens.
 - b. congenitally missing lateral incisors.
 - c. a tongue thrust habit.
 - d. a hypertrophied superior labial frenum.
- A. (a), (b) and (c)
 - B. (a), (b) and (d)
 - C. (a), (c) and (d)
 - D. (b), (c) and (d)
 - E. All of the above

70. Accepted methods for closing a diastema between maxillary central incisors include using

- a. a lingual arch with finger springs.
 - ~~b.~~ a rubber elastic around the two teeth.
 - ~~c.~~ a steel ligature around the two teeth.
 - d. a Hawley appliance with finger springs.
 - e. cemented orthodontic bands with intertooth traction.
- A. ~~(a), (b) and (c)~~
 - ~~B. (a), (c) and (d)~~
 - C. (a), (d) and (e)
 - D. ~~(b), (c) and (e)~~
 - E. ~~(b) and (e)~~

71. The optimal time to employ an orthodontic appliance that takes advantage of growth is during

- A. late primary dentition.
- ~~B. early mixed dentition.~~
- C. late mixed dentition.
- D. early permanent dentition.

72. For an eight year old patient, with good posterior occlusion, no arch length deficiency, one central incisor severely rotated and a large midline diastema present treatment should be to

- A. have the labial frenum excised.
- B. rotate the tooth with an appliance.
- C. examine for a supernumerary tooth.
- D. inject thyroid hormone to stimulate eruption of the lateral incisors.
- E. None of the above.

73. Fixed orthodontic therapy is typically initiated with

- A. Heavy reectangular wires
- B. Heavy rectangular wires
- C. Light round wires
- D. Heavy round wires

74. To be effective in moving the roots of teeth, an orthodontic appliance must be

- A. very gentle in action.
- B. augmented with extraoral force.
- C. capable of exerting a torque or moment on the teeth.
- D. capable of exerting positive, intermittent forces.

75. When comparing cementum to bone in their responses to orthodontic forces, cementum resorbs

- A. more readily.
- B. less readily.
- C. not at all.
- D. under lighter loads.
- E. by indirect (undermining) resorption.

76. The cephalometric landmark A point is located on which facial bone?

- A. Mandible
- B. Nasal
- C. Maxilla
- D. Frontal

77. Two equal, opposite and non colinear forces form a

- A. Scalar
- B. Couple
- C. Vector
- D. Moment

78. Excessive orthodontic force used to move a tooth may

- A. cause hyalinization.
- B. cause undermining resorption.
- C. crush the periodontal ligament.
- D. All of the above
- E. Only (A) and (C) above

79. Continuous, heavy orthodontic forces employed in moving teeth may cause

- a. resorption of cementum.
- b. resorption of dentin.
- c. resorption of enamel.
- d. devitalized teeth.
- e. undermining resorption of alveolar bone.

- A. ~~(a), (b) and (c)~~
- B. (a), (b), (d) and (e)
- C. (a), (d) and (e) only
- D. (b), (d) and (e) only
- E. ~~(c), (d) and (e)~~
- F. All of the above

80. When the orthodontic force applied is light, resorption will probably be

- A. apical.
- B. direct.
- C. indirect.
- D. undermining.
- E. none of the above.

81. In applying orthodontic forces low load deflection rates are desirable to obtain because they

- a. Give the clinician greater control of the force magnitudes resulting in less error per unit activation
- b. Deliver a more constant level of force
- c. Produce more desirable stress levels in the periodontal ligament
- d. Result in less breakage of materials

- A. (a) or (b)
- B. (a) or (c)
- C. (a) (b) or (c)
- D. (c) only
- E. (d) only

82. All of the following are possible skeletal etiologies resulting in Class II malocclusions except:

- A. Maxillary prognathism
- B. Mandibular retrognathism
- C. Mandibular hyperplasia
- D. Maxillary prognathism, mandibular retrognathism

83. Diastemas can result from
- A. supernumeraries, habits, deep frenum attachments
 - B. microdontia, hypodontia, missing laterals
 - C. normal development of the dentition
 - D. All of the above
84. Severe skeletal Class IIIs are best treated
- A. Orthodontically
 - B. With growth modification
 - C. With a combined surgical and orthodontic approach
85. Which of the following procedures should be adopted if a permanent maxillary central incisor erupts into a position of lingual crossbite in a 7-year-old child?
- A. Mechanical methods should be used immediately to move the maxillary central incisor into normal occlusion.
 - B. The patient should be observed at 6-month intervals because cases of this type are usually self-correcting.
 - C. No mechanical methods should be used to move the maxillary central incisor until the permanent maxillary canines erupt completely.
 - D. A space maintainer should be constructed to prevent loss of space until correction is undertaken.
86. If a maxillary cuspid has not erupted by 14 years of age a clinician should conclude that the tooth is most likely impacted and will need surgical/orthodontic intervention.
- A. True
 - B. False
87. What kind of anchorage is described when the bodily movement of one group of teeth (high anchorage value) is opposed by the tipping (low anchorage value) of another group of teeth.
- A. Simple
 - B. Reinforced
 - C. Stationary
88. A helical spring is contraindicated for molar uprighting when the tooth is unopposed because of the rapid extrusion which results.
- A. True
 - B. False
89. The sphenoid, ethmoid and occipital bones originate from what type of bone formation?
- A. Intermembraneous
 - B. Endochondral
 - C. Interconnective
90. The frontal, parietal, and nasal bones originate from what type of bone formation?
- A. Intermembraneous
 - B. Endochondral
 - C. Interconnective

91. Radiographic examination of a child revealed several missing primary and permanent teeth. No teeth had been extracted. The history indicated practically no perspiration during hot, summer months. These facts would lead to a preliminary diagnosis of

- A. achondroplasia
- B. ectodermal dysplasia.
- C. osteogenesis imperfecta.
- D. cleidocranial dysostosis.

92. Ideal occlusion in the adult population of the United States is found

- A. often (80-90 per cent).
- B. 50-60 per cent of the time.
- C. 20-30 per cent of the time.
- D. very rarely (0-5 per cent).

93. The incidence of cleft palate in the general population in the United States is approximately one in

- A. 500 live births.
- B. 800 live births.
- C. 2,000 live births.
- D. 4,000 live births.

94. Cephalometric analysis aids the clinician in all of the following except:

- A. Archwire selection
- B. Diagnosis
- C. Treatment planning
- D. Determining effects of treatment

95. A patient has an SNA of 79° and SNB of 86° . This patient most likely has which Angle malocclusion type?

- A. Class I
- B. Class II
- C. Class III
- D. None of the above

96. Which of following is not one of Andrew's 6 keys

- A. Distal surface of the DB cusp of upper first molar makes contact and occludes with the mesial surface of the MB cusp of the lower second molar
- B. Gingival portion of each tooth, according to type, is distal to the incisal/occlusal portion
- C. Periodontal attachment is at the CEJ
- D. No spaces or rotations
- E. Flat to gentle curve of Spee

97. Tipping and intrusive mechanics concentrate forces in a localized areas and therefore utilize lower force levels than forces required for translation.

- A. True
- B. False

98. Scammon's growth curves depict

- A. Sequence of tooth eruption
- B. Differential maturation of different body tissues
- C. Male/ female growth differential
- D. Interstitial growth of the mandible

99. One complete revolution of a jackscrew used for palatal expansion is:

- A. 1 mm
- B. 2 mm
- C. 3 mm
- D. 4 mm
- E. 5 mm

100. The stiffer an archwire the greater its range.

- A. True
- B. False

Principles of Orthodontics II Midterm

1998

Name ~~XXXXXXXXXXXXXXXXXXXX~~

90
100

Identify the following from 35mm slides

1. The object between the molar and premolar is:

- A. food
- B. separator
- C. expander
- D. rubber band

2. The purpose of this device is

- A. periodontal aid
- B. operative aid prior to matrix band placement
- C. orthodontic aid prior to a banding appointment
- D. improve embrassure form

~~3~~ The most obvious error in this slide is

- A. incorrect wire placement
- B. incorrect bond placement
- C. incorrect ligature placement
- D. incorrect band placement

4. Identify this orthodontic appliance

- A. Herbst appliance
- B. Nance button
- C. Palatal expander
- D. Bionator

5. The molar relationship is

- A. Class I
- B. Class II
- C. Class III

~~6~~ The anterior relationship is best described as a(n)

- A. Normal bite
- B. Cross bite
- C. Deepbite

~~7~~ The best way to evaluate the midlines would be

- A. Have the patient close in CO
- B. Reposition the mandible and evaluate for a shift from CO to CR
- C. Measure the arch length deficiency
- D. Evaluate the position of the lower incisors on the cephalogram

8. The crossbite of tooth #9 is

- A. Skeletal and related to mandibular prognathia
- B. Related to the ectopic eruption of tooth #9
- C. Is best treated in the permanent dentition
- D. Normal and related to the stage of eruption

9. The Best way to treat this condition at this time would be a:

- A. Removable appliance
- B. Tonque blade
- C. Palatal expansion
- D. Orthognathic surgery

10. The type of tooth movement needed to correct this condition is
- A. translation
 - B. tipping
 - C. rotation
 - D. intrusion
11. If the ANB of this patient is -4 degrees he would most like exhibit a
- A. Class I molar relationship
 - B. Class II molar relationship
 - C. Class III molar relationship
12. The inner most cephalometric point on the contour of the premaxilla between ANS and the upper incisor tooth is known as
- A. A point
 - B. B point
 - C. Sella
 - D. Pogonion
13. The most anterior point on the contour of the chin is known as
- A. A point
 - B. B point
 - C. Sella
 - D. Pogonion
14. The midpoint of either the upper contour of the external auditory canal or the upper contour of the metal ear rod of the cephalometer is called:
- A. Point A
 - B. Point B
 - C. Sella
 - D. Porion
15. Cephalometric radiographs are always standardized. The distance of the x-ray source to the subject's midsagittal plane is:
- A. 2 feet
 - B. 5 feet
 - C. 10 feet
 - D. 15 feet

Proceed with the remainder of the exam.

16. According to Proffit a unilateral crossbite in a preschool child is almost always the result of:

- A. skeletal asymmetry
- B. dental asymmetry
- C. symmetrically narrow maxilla with a functional shift.

17. Functional shifts of the mandible while permanent teeth are erupting can produce both transverse and anteroposterior deviations in tooth position.

- A. True
- B. False

18. True anterior crossbites in the mixed dentition are rare because mandibular growth lags behind maxillary growth.

- A. True
- B. False

19. All of the following are examples of clasps for removable orthodontic appliances **except**

- ~~A.~~ Adams Clasp
- B. W clasp
- ~~C.~~ Ball Clasp
- ~~D.~~ Circumferential clasp

20. The point of force application for a spring on a removable appliance can be improved by:

- ~~A.~~ Placing the spring in an undercut area of the tooth and using a wire guide
- ~~B.~~ Using a small diameter archwire
- ~~C.~~ Bonding an attachment to the tooth surface
- ~~D.~~ A & B
- E. A & C

21. The best plier for activation of orthodontic springs is a

- ~~A.~~ Bird beak plier
- ~~B.~~ Hollow Chop plier
- ~~C.~~ Arch contouring plier
- ~~D.~~ Steiner plier

22. The most common uses of removable appliances include all of the following **except**:

- ~~A.~~ Orthodontic retention
- ~~B.~~ Intrusion of teeth
- ~~C.~~ Growth modification
- ~~D.~~ Minor tooth movement limited to tipping

23. Racial differences affect the incidence of malocclusion. In general, the incidence of malocclusion in an inbred population relative to a heterogeneous population is

- ~~A.~~ much higher
- ~~B.~~ higher
- ~~C.~~ about the same
- D. lower
- ~~E.~~ much lower

24. In making a diagnosis of ankylosis of a primary molar, which of the following points are of major importance?

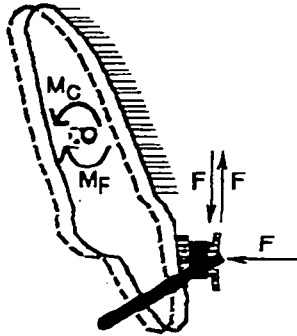
- a. Radiographic absence of a periodontal shadow
- ~~→ b.~~ Observation that the involved tooth is in infraocclusion
- ~~→ c.~~ A difference in the percussion sound of the ankylosed tooth as compared with a normal tooth
- d. Observation that the tooth has extruded beyond the occlusal plane
- e. Radiographic observation that the succeeding permanent tooth apparently has no follicle

- ~~A.~~ (a) and (b)
- B. (b) and (c)
- ~~C.~~ (c) and (d) only
- ~~D.~~ (c), (d) and (e)
- ~~E.~~ (d) and (e) only

25. The incidence of malocclusion in the United States is more identifiable in 8-year-old children than in 4-year-old children because.
- A. unfavorable muscle influences are expressed by age 8.
 - ~~B. permanent incisors erupt in a more procumbent position than do primary incisors.~~
 - C. eruption of permanent incisors reveals tooth-arch length discrepancies.
 - D. tooth size discrepancies become greater with age and are more noticeable.
 - E. space loss becomes apparent after normal exfoliation of primary molars.

26. During which type of tooth movement should the lightest forces be used?
- A. Tipping *50-75*
 - B. Translation *100-150*
 - C. Intrusion *15-25*
 - D. Rotation *75-125*
 - E. Extrusion *150-200*

27. Figure 1 illustrates the proper moment to force ratio which results in what kind of tooth movement?



- A. Tipping
 - B. Intrusion
 - C. Translation
 - D. Extrusion
28. How much force typically is required for this type of tooth movement
- A. 50-75 grams
 - B. 100-150 grams
 - C. 75-125 grams
 - D. 15-25 grams
 - E. 50-100 grams

29. Growth is defined as increase in size, while development is the process of cell hypertrophy.
- A. The first statement is true, the second false
 - ~~B. The first statement is false, the second true~~
 - C. Both statements are true
 - D. Both statements are false

30. Tissues increase in size by
- A. Cellular hyperplasia
 - B. Cellular hypertrophy
 - C. Secretion of extracellular material
 - D. A & B
 - E. A & B & C

31. Materials used in orthodontics to secure an archwire to a bracket include
- A. Elastics
 - B. Alastics
 - C. Small ligature wires
 - D. B & C
 - E. A & C
32. Bondable brackets have an identifying mark to aid in placement on the:
- A. Mesial gingival wing
 - B. Disto gingival wing
 - C. Mesial incisal wing
 - D. Disto incisal wing
- 7
6 33. In orthodontic treatment stiff round wires are normally used for initial alignment while larger rectangular wires are used for space consolidation.
- A. The first statement is true the second statement is false
 - B. The first statement is false the second statement is true
 - C. Both statements are true
 - D. Both statements are false
34. The most common orthodontic slot sizes are
- A. .010
 - 7
5
30 B. .022
 - C. .018
 - D. A & B
 - E. B & C
35. In classifying the occlusion, (Class I,II,III), in a patient with premature primary molar loss, an additional observation to reinforce the initial evaluation should be
- A. midline relation.
 - B. incisor relation.
 - C. canine relation.
 - D. molar relation.
 - E. profile.
36. Certain types of malocclusion in the young growing child may adversely affect the
- A. position of the teeth and the associated alveolar processes.
 - B. growth and development of certain facial bones resulting in disharmony of facial features.
 - C. Neither (A) nor (B) above
 - D. Either (A) or (B) above
37. In terms of incidence of malocclusion, supervision of the child's development of occlusion is most critical between the ages
- A. 3-5 years.
 - B. 6-10 years.
 - C. 11-16 years.
38. Orthodontics in conjunction with orthognathic surgery are treatment modalities used in non growing patients with severe skeletal malocclusions.
- A. True
 - B. False

39. Certain types of malocclusion in the young growing child may adversely affect the
- A. position of the teeth and the associated alveolar processes.
 - B. growth and development of certain facial bones resulting in disharmony of facial features.
 - C. Neither (A) nor (B) above
 - D. Either (A) or (B) above

- ~~40.~~ If a tooth crown is tipped in one direction, the root apex of the tooth will
- a. Remain in the same relative position
 - b. Move in the opposite direction.
 - c. Move in the same direction.

- ~~a~~
- A. (a) only
 - B. (a) or (b)
 - C. (a) or (c)
 - D. (b) only
 - E. (c) only

41. According to your text, removable expansion appliances are not recommended for skeletal crossbites or dental expansion of more than 4-5 mm.

- A. True
- B. False

42. Which of the following is not true for transverse expansion with removable plates

- A. The expansion rate should very slow, 2 turns per week
- B. A continous force is exerted *Interupted*
- C. Extra anchorage is require usually in the form of clasps
- D. One complete revolution of the mini screw is 1 mm

43. At birth, which of the following structures is nearest the size it will eventually attain in adulthood?

- A. Cranium
- B. Mandible
- C. Clavicle
- D. Middle face
- E. Nasal capsule

44. Intramembraneous bones of the craniofacial complex are more susceptible anomalies in growth than endochondral bones.

- ~~X~~
- A. True
 - B. False

45. Cephalometrics is a tool for evaluating dentofacial relationships. Other uses in orthodontics include

- A. Help in diagnosis of skeletal problems
- B. Prediction of growth direction and potential
- C. Evaluation of treatment results.
- D. All of the above are correct.

- ~~46.~~ The mixed dentition space analysis which estimates required arch length based on the widths of the lower incisors:

- ~~D~~
- A. Moyers
 - B. Johnson and Tanaka
 - C. Hixon and Oldfather
 - D. All of the above

47. Growth is defined as increase in size, while development is the process of cell hypertrophy.

- A. The first statement is true, the second false
 B. The first statement is false, the second true
 C. Both statements are true
 D. Both statements are false

48. Tissues increase in size by

- A. Cellular hyperplasia
 B. Cellular hypertrophy
 C. Secretion of extracellular material
 D. A & B
 E. A & B & C

49. Andrew's 6 keys describe:

- A. Framework for normal occlusion
 B. Prescription for archwire fabrication
 C. Features desirable in retainer design
 D. Ideal profile features

50. The duration of force, as produced by orthodontic appliances, may be classified as:

- A. integrated
 B. continuous
 C. interrupted
 D. intermittent
 E. B, C, D

51. The cephalometric landmark A point is located on which facial bone?

- A. Mandible
 B. Nasal
 C. Maxilla
 D. Frontal

52. A cephalometric line connecting jugal point to the antegonial notch is helpful in assessing:

- A. The airway
 B. Lip contour
 C. Potential for skeletal expansion
 D. Incisor protrusion

53. Cephalometrics is an aid in orthodontic treatment planning because it provides information about the

- A. relationship of maxillary and mandibular basal bone to the cranial base.
→ B. relationship of maxillary anterior teeth to the maxillary basal bone.
→ C. relationship of mandibular anterior teeth to the mandibular basal bone.
→ D. relationship of maxillary and mandibular teeth to one another.
→ E. progress of orthodontic treatment.

- A. (a), (b) and (c) only
 B. (a), (b), (c) and (d)
 C. (a), (d) and (e)
 D. (b), (c) and (e)
 E. All of the above

54. Which of the following is not a goal of early orthodontic treatment?

- A. Minimizing crowding problems
- B. Minimizing the effect of functional crossbites
- C. Extraction of permanent teeth in young patients with severe crowding
- D. Eliminating orofacial habits
- E. Recognizing skeletal problems

55. In orthodontic diagnosis the problem list aids the clinician in:

- A. Determining the importance of each finding
- B. Establishing treatment solutions and goals
- C. Developing an optimal treatment plan
- D. A & C
- E. A & B & C

56. A patient with an ANB of -4° and a concave facial profile is likely to a _____ skeletal malocclusion

- A. Class I
- B. Class II
- C. Class III

57. Which of the following are basic treatment strategies to facilitate the correction of posterior crossbites in children?

- A. Expansion of the constricted maxillary arch
- B. Surgery
- C. Equilibration of deciduous teeth to eliminate mandibular shift
- D. Orthodontic movement of individual teeth to deal with intra arch asymmetries
- E. A, C, E

58. A 10 year old female with a moderate Class II div 1 malocclusion characterized by 5 mm of overjet, 4 mm of overbite, ANB of 5° , and mild lower incisor crowding. Which orthodontic treatment approaches would be prudent?

- A. Growth modification
- B. Space maintenance
- C. Surgery
- D. A & B
- E. B & C

59. A 10-year-old boy has an Angle Class III molar relationship and an incisor crossbite when his jaws are closed to centric occlusion. When his jaws are guided to a centric relation position the molar relationship is Class I and the incisors are edge-to-edge anteroposteriorly. You should advise the parent that

- A. The child has a growth problem and occlusal correction will not be completed until growth is complete.
- B. if the malrelationship is corrected now future growth will likely undo the correction.
- C. the incisor malrelationship should be corrected now.
- D. future growth is likely to correct this problem.

60. Which of the following is not an orthopedic device for growth modification of a Class II malocclusion in the late mixed dentition?

- A. Cervical headgear
- B. Reverse pull headgear For class 3 mal
- C. Bionator
- D. Twin Block

61. The optimal time to employ an orthodontic appliance that takes advantage of growth is during
- late primary dentition.
 - early mixed dentition.
 - late mixed dentition.
 - early permanent dentition.
62. How does mandibular growth in boys ordinarily compare with that in girls?
- Sustained over a longer period of time for boys
 - Sustained over a longer period of time for girls
 - Occurs at the same chronologic age in both sexes
63. In the child patient the mandibular foramen is located
- at a level lower than the occlusal plane of the deciduous teeth.
 - at a higher level than the occlusal plane of the deciduous teeth.
 - at the same level as the occlusal plane of the deciduous teeth.
 - in the same general area as in an adult.
64. Stiffness of orthodontic wire is a function of
- length of the wire segment.
 - diameter of the wire segment.
 - alloy composition.
 - all of the above.
 - none of the above.
65. The best time to correct a maxillary central incisor crossbite is
- after permanent canines erupt.
 - after permanent central incisors erupt.
 - after permanent lateral incisors erupt.
 - during the eruptive stage of central incisors.
66. Which of the following movements is easiest to accomplish?
- Tipping molars distally.
 - Tipping incisors mesially.
 - Intruding anterior teeth.
 - Bodily moving incisors mesially.
67. If an active lingual arch were placed to correct a bilateral crossbite, the type of anchorage used would be
- simple.
 - complex.
 - compound.
 - reciprocal.
 - stationary.
 - contralateral.
68. Rank the following permanent teeth according to their ability to provide anchorage, greatest to least
- Maxillary central incisor
 - Maxillary canine
 - Maxillary first molar
 - Mandibular incisor
- c bad*
- (b), (c), (a), (d)
 - (c), (b), (a), (d)
 - (d), (b), (d), (a)
 - (d), (a), (b), (c)

69. Crossbites are often seen in the developing dentition in the molar region.

Treatment should always be as follows:

- A. both molars should be moved equal amounts for correction.
- B. one molar should be moved the entire distance for correction.
- C. the possibility of functional interference and shift of the mandible should be considered.
- D. one molar should be extracted.

70. Scammon's growth curves depict

- A. Sequence of tooth eruption
- B. Differential maturation of different body tissues
- C. Male/ female growth differential
- D. Interstitial growth of the mandible

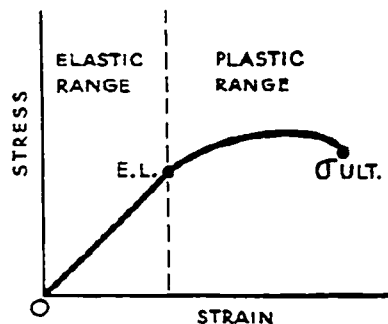
71. One complete revolution of a jackscrew used for palatal expansion is:

- A. 1 mm
- B. 2 mm
- C. 3 mm
- D. 4 mm
- E. 5 mm

72. The late mesial shift of a permanent first molar is primarily the result of closure of which of the following spaces?

- A. Canine
- B. Leeway
- C. Primate
- D. Extraction

~~73.~~ The following graph illustrates what mechanical relationship?



- b ~~A~~ ~~B~~ ~~C~~
- A. Bjork's theorem
 - B. Hook's law
 - C. Cook's slope
 - D. Bennett curve

74. With initial alignment a wire with a low load deflection rate, (LDR), is desirable because

- A. The force constancy will remain longer
- B. There is more control in force magnitude with low LDRs
- C. Low LDRs are less likely to damage the periodontium.
- D. All of the above are correct

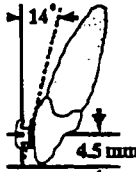
75. The tendency of a force to produce a rotation of a body around its fixed axis is known as a

- A. Moment
- B. Couple
- C. Scalar
- D. Vector

76. For a given type of tooth movement, (tipping, translation) the determining criteria is:
- the size of the archwire
 - the size of the bracket
 - the moment to force ratio
 - the age of the patient
77. An example of an interrupted orthodontic force would be
- A closing loop archwire *intermittent*
 - Hawley appliance with a finger spring
 - An orthodontic alastic powerchain
 - A fixed palatal expander
78. When a simple tipping force is applied to the crown of a single-rooted tooth, the center of rotation is usually located
- at the apex.
 - at the cervical line.
 - 5 mm. beyond the apex.
 - One-third to one half the root length from the apex.
 - two-thirds the root length from the apex.
79. Which of the following is not a stage of fixed orthodontic treatment as discussed in lecture.
- Anchorage
 - Leveling and alignment
 - Headgear wear
 - Space control
 - Detailing and finishing
80. Which of the following is not an indication for a removable acrylic appliance
- Consolidation of extraction spaces
 - Limited, single tooth tipping movements
 - Growth modification
 - Post orthodontic retention
81. A non compliant method of maintaining lower incisor alignment after orthodontics would be
- A removable Hawley
 - A bonded cuspid to cuspid retainer
 - Interproximal reduction
 - A lip bumper
82. The leeway space is
- The size differential between the primary and permanent incisors
 - The size differential between the primary cuspids, 1st and 2nd deciduous molars and the permanent cuspid, 1st and 2nd premolars
 - Residual space between the mandibular primary lateral incisor and primary cuspid
 - A diastema occurring during the mixed dentition
83. If the line of action of a force is close to the center of resistance then the moment of the force will be relatively:
- High
 - Low *Shorter lever arm*
 - Zero

84. A center of rotation can be described as:
- A. The point at which it is in perfect balance
 - B. The point at which a body appears to have rotated as determined from its initial and final positions.
 - C. Equivalent to the moment of a couple
85. Fishman's study showed that within his sample, the greatest growth velocity occurred:
- A. between ages 10 and 12 for females
 - B. between ages 12 and 14 for males
 - C. between ages 14 and 16 for males
 - D. a and b
 - E. a and c
86. The biggest single improvement that preadjusted, fixed orthodontic appliances provide over the older, conventional orthodontic appliances is a standard incorporation of Andrew's Keys of occlusion into the bracket instead of placement in the archwire.
- A. True
 - B. False

87. To activate the torque in the bracket illustrated in the figure below what kind of arch wire is required.



- A. Round
 - B. Rectangular
88. Which of the following are reasons that preadjusted appliances are not "perfect" for all orthodontic cases?
- A. They cost too much
 - B. Variations in bracket placement and in tooth structures
 - C. Morphologic features unique to the patient
 - D. A & B
 - E. B & C
89. A lingually locked young permanent incisor, so-called "anterior crossbite", presents a problem in preventive orthodontics. Which procedure below might be employed successfully by a general dentist in correcting this condition?
- A. Johnson twin arch
 - B. Headgear and labial arch
 - C. Tongue corrective exercises
 - D. Removable Hawley with finger spring
90. The best time to correct a maxillary central incisor crossbite is
- A. after permanent canines erupt.
 - B. after permanent central incisors erupt.
 - C. after permanent lateral incisors erupt.
 - D. during the eruptive stage of central incisors.
91. A posterior crossbite of skeletal origin will generally exhibit a smooth path of mandibular closure with coincidence of CO and CR and multiple teeth involved in the crossbite.
- A. True
 - B. False

92. Crossbites are often seen in the developing dentition in the molar region.

Treatment should always be as follows:

- A. both molars should be moved equal amounts for correction.
- B. one molar should be moved the entire distance for correction.
- C. the possibility of functional interference and shift of the mandible should be considered.
- D. one molar should be extracted.

93. The archwire property that describes the distance a wire can be bent before becoming permanently deformed is

- A. stiffness
- B. strength
- C. range

94. What bone is the main buttress against maxillary expansion?

- A. Maxillary bone
- B. Zygomatic bone
- C. Sphenoid bone
- D. Temporal bone

95. Excessive orthodontic force used to move a tooth may

- A. cause hyalinization.
- B. cause undermining resorption.
- C. crush the periodontal ligament.
- D. All of the above
- E. Only (A) and (C) above

96. Tipping and intrusive mechanics concentrate forces in a localized areas and therefore utilize lower force levels than forces required for translation.

- A. True
- B. False

97. In general, the greatest increment of facial growth occurs between

- A. 4 and 8 years of age.
- B. 8 and 12 years of age.
- C. 12 and 16 years of age.
- D. 16 and 20 years of age.

98. Additional space for the eruption of succeeding maxillary molars is made by

- a. continuous expansion of the dental arch.
 - b. downward and forward shift of the maxillary complex.
 - c. interstitial bone growth.
 - d. appositional growth at the maxillary tuberosity.
 - e. increase in palatal vault height.
- A. (a) and (c)
 - B. (a) and (d)
 - C. (b) and (d)
 - D. (b) and (e)
 - E. (c) and (e)

99. Cartilage grows by which of the following methods?

- A. Interstitial growth only
- B. Appositional growth only
- C. Both appositional and interstitial growth
- D. Degenerative changes into bony structures

100. Arch length space for the eruption of permanent mandibular second and third molars is created by

- A. apposition of the alveolar process.
- B. apposition at the anterior border of the ramus.
- C. resorption at the anterior border of the ramus.
- D. resorption at the posterior border of the ramus.