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2019 Orthodontics



DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

Test Booklet Series

T. B. C. : APD(Ortho) -5-18/19

A

TEST BOOKLET

ASSISTANT PROFESSOR (DENTISTRY)

Orthodontics

Sl. No.

1178

Time Allowed : 3 Hours

Maximum Marks : 200

: INSTRUCTIONS TO CANDIDATES :

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET OF THE SAME SERIES ISSUED TO YOU.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES **A, B, C** OR **D**, AS THE CASE MAY BE, IN THE APPROPRIATE PLACE IN THE ANSWER SHEET USING BALL POINT PEN (BLUE OR BLACK).
3. You have to enter your **Roll No.** on the Test Booklet in the Box provided alongside. **DO NOT** write *anything else* on the Test Booklet.
4. **YOU ARE REQUIRED TO FILL UP & DARKEN** ROLL NO., TEST BOOKLET / QUESTION BOOKLET SERIES IN THE ANSWER SHEET AS WELL AS FILL UP TEST BOOKLET / QUESTION BOOKLET SERIES AND SERIAL NO. AND ANSWER SHEET SERIAL NO. IN THE ATTENDANCE SHEET CAREFULLY. **WRONGLY FILLED UP ANSWER SHEETS ARE LIABLE FOR REJECTION AT THE RISK OF THE CANDIDATE.**
5. This Test Booklet contains **200** items (questions). Each item (question) comprises four responses (answers). You have to select the correct response (answer) which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct response (answer), you should mark (darken) the response (answer) which you consider the best. In any case, choose **ONLY ONE** response (answer) for each item (question).
6. You have to mark (darken) all your responses (answers) **ONLY** on the **separate Answer Sheet** provided by using **BALL POINT PEN (BLUE OR BLACK)**. See instructions in the Answer Sheet.
7. All items (questions) carry equal marks. All items (questions) are compulsory. Your total marks will depend only on the number of correct responses (answers) marked by you in the Answer Sheet. **There will be no negative marking for wrong answer.**
8. Before you proceed to mark (darken) in the Answer Sheet the responses (answers) to various items (questions) in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions sent to you with your **Admission Certificate**.
9. After you have completed filling in all your responses (answers) on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the *Answer Sheet* issued to you. You are allowed to take with you the candidate's copy / second page of the Answer Sheet along with the **Test Booklet**, after completion of the examination, for your reference.
10. Sheets for rough work are appended in the Test Booklet at the end.

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JM - 5A/26

Contd.

1. The terminologies forward and backward rotation was proposed by:
- (A) Solow and Houston
 (B) Bjork and Skeiller
 (C) Proffit
 (D) Shudy
2. Corpus rotation in relation to cranium is known as :
- (A) Matrix rotation
 (B) Internal rotation
 (C) Intra matrix rotation
 (D) Apparent rotation
3. Which of the following statement is true as far as the position of glenoid fossa and malocclusion is concerned ?
- (A) In Class III malocclusion the position of glenoid fossa is more distal
 (B) In Class III malocclusion the position of glenoid fossa is more mesial
 (C) In Class II malocclusion the position of glenoid fossa is more mesial
 (D) There is no relation between the glenoid fossa and the malocclusion
4. Which of the following statement is not true as far as achondroplasia is concerned ?
- (A) The anterior cranial base is of normal length
 (B) The anterior cranial base is of shorter in length
 (C) It is transmitted as autosomal dominant trait
 (D) The posterior cranial base is of shorter length
5. Who has given the idea that during growth and development of the dentofacial complex, there are compensatory dental and skeletal changes ?
- (A) Enlow
 (B) Moyers
 (C) Mc Namara
 (D) Hunter

6. On the basis of which of the following technique Enlow has reconstructed gross patterns of bone formation and destruction ?
- Histological method
 - Vital staining
 - Histochemical study
 - Autoradiography
7. Spheno-ethmoidal synchondrosis fuses around the period of :
- Primary dentition
 - Mixed dentition
 - Permanent dentition
 - It never fuses
8. Cortical drift occurs during the growth by process of :
- Drift due to growth of other bones at distant sites
 - Primary resorption
 - Bone bending and relocation
 - Combination of selective bone formation and resorption
9. Cartilage differs from bone as it grows by :
- Growth of the cells in lacunae
 - Appositional growth pattern
 - Interstitial growth pattern
 - None of these
10. Rotational changes in the mandible essentially consist of :
- Matrix rotation 25% and intra-matrix rotation 75%
 - Martix rotation 50% and intra-matrix rotation 50%
 - Martix rotation 100% and intra-matrix rotation 0%
 - Martix rotation 0% and intra-matrix rotation 100%
11. Early repair of hard palate in cleft patient is done for :
- Correction speech
 - Induce growth of maxilla
 - Correction of breathing behaviour
 - Induce the growth of mandible

12. The latency period after mandibular osteotomy during distraction osteogenesis is :
- (A) 5 days
 (B) 10 days
 (C) 15 days
 (D) 1 month
13. According to envelop of "limit of treatment" by Ackerman and Proffit, combined orthodontic and surgical treatment can bring about a maximum of :
- (A) 6 mm of buccal intrusion of maxilla
 (B) 5 mm of sagittal advancement of maxilla
 (C) 4 mm of buccal segment extrusion in mandible
 (D) 3 mm of buccal segment expansion in mandible
14. In a patient with cleft palate alveolar bone grafting should be done :
- (A) After expansion of maxilla and correction of cross bite and after cuspid eruption
 (B) Before expansion of maxilla and correction of cross bite, after cuspid eruption
 (C) Before expansion of the maxilla and correction of cross-bite, but after cuspid eruption
 (D) After expansion of maxilla and correction of cross-bite, but before cuspid eruption
15. Angle's classification of malocclusion is an example of which of the following type of norm ?
- (A) Biometric
 (B) Objective
 (C) Subjective
 (D) Diagnostic
16. The assessment of the basal relationship through angle ANB was introduced by :
- (A) Jacobson
 (B) Reidel
 (C) Wits
 (D) Broadbent

17. On a lateral Cephalogram which of the following bony landmark will show least magnification ?
- (A) Left Orbitale
(B) Nasion
(C) Pogonion
(D) Left Gonion
18. C_{res} of maxillary anterior teeth is at :
- (A) Between two premolars
(B) Between lateral incisor and canine
(C) Between two central incisors
(D) Between canine and premolar
19. Ductility of an orthodontic wire can be measured with which of the following technique(s) ?
- (A) Cold bend test
(B) Reduction in the area of the fractured ends
(C) % elongation
(D) All of these
20. Ratio of yield strength to modulus of elasticity termed as :
- (A) Spring back of material
(B) Modulus of elasticity
(C) Toughness of material
(D) Rigidity of material
21. Which of the following orthodontic bracket and wire combination produces the minimum friction during various orthodontic tooth movements ?
- (A) Ceramic bracket with stainless steel wire
(B) Ceramic bracket with TMA wire
(C) Ceramic bracket with metal insert and stainless steel wire
(D) Ceramic bracket with metal insert and TMA wire
22. At which of the following point during various orthodontic tooth movements the stress is always zero ?
- (A) C_{rot}
(B) C_{res}
(C) Incisal edge
(D) Cement-enamel junction of the tooth

23. "Tip back" bends are considered to provide which type of anchorage ?
- (A) Prepared anchorage
 - (B) Reinforced anchorage
 - (C) Dynamic anchorage
 - (D) None of these
24. Which of the following is clinically one of the most important criteria in wire selection for orthodontic purpose ?
- (A) Stiffness or load to deflection ratio
 - (B) Strength
 - (C) Spring back
 - (D) All of these
25. The orthodontic force applied by NiTi open coil springs is an example of :
- (A) Intermittent force
 - (B) Interrupted force
 - (C) Continuous force
 - (D) None of these
26. The risk of root resorption is much greater for :
- (A) Maxillary incisors
 - (B) Mandibular incisors
 - (C) Maxillary canines
 - (D) Maxillary First molars
27. Which of the following cements provide maximum resistance to enamel decalcification, when used with molar bands ?
- (A) GIC
 - (B) Zinc phosphate
 - (C) Zinc polycarboxylate
 - (D) Silicate
28. ADA number for orthodontic wire is :
- (A) 30
 - (B) 32
 - (C) 29
 - (D) 25
29. Which of the following orthodontic wires has maximum surface friction with orthodontic brackets ?
- (A) NiTi wire
 - (B) Stainless steel wire
 - (C) Australian wire
 - (D) TMA wire

30. The 37% hydrophosphoric acid typically dissolves how much micrometer of enamel surface and creates a zone of etched enamel rods for about 15-25 micrometer :
- (A) 1-5
 - (B) 5-10
 - (C) 10-15
 - (D) More than 15
31. Cutting edges of the orthodontic instruments are made up of :
- (A) Austentic carbon steel
 - (B) Martensitic carbon steel
 - (C) Ferrite carbon steel
 - (D) Cementite carbon steel
32. Magnets used in orthodontic practice, the magnetic force follows the :
- (A) Inverse square law
 - (B) Coloumb's law
 - (C) Gravitational law
 - (D) Law of electrostatic
33. Normal facial plane index is :
- (A) < 75%
 - (B) 75% to 80%
 - (C) > 80%
 - (D) 1
34. Cephalocaudal gradient of growth means :
- (A) Axis of increased growth extending from the head towards the feet
 - (B) Axis of increased growth extending from feet towards the head
 - (C) Axis of decreased growth extending from the head towards the feet
 - (D) Axis of decreased growth extending from the feet towards the head
35. Which of the following soft tissue of oro-facial region mature first ?
- (A) Lip
 - (B) Tip of tongue
 - (C) Posterior 1/3 of tongue
 - (D) All soft tissues mature simultaneously
36. Hardening heat treatment is commonly used for :
- (A) TMA wire
 - (B) Elgiloy wire
 - (C) Nickel titanium wire
 - (D) Stainless steel wire

37. Which angle does not change by orthodontic treatment ?
- (A) ANB
(B) SNB
(C) SNA
(D) Saddle angle
38. Antigonial notch is prominent when mandibular growth is :
- (A) Forward and Upward
(B) Forward and Downward
(C) Downward and Backward
(D) Antigonial notch is prominent in all types of mandibular growth pattern
39. Which of the following hormone exerts the least effect on growth ?
- (A) Vasopressin
(B) Testosterone
(C) Growth hormone
(D) Insulin
40. Which is not a function of a crib ?
- (A) Distribute the pressure to the posterior teeth
(B) Make the habit non pleasurable for patients
(C) Act as a reminder to patient
(D) Establish the suction and force on the anterior segment
41. Who developed the concept of "Z" angle ?
- (A) Tweed
(B) Angle
(C) Merrifield
(D) Andrews
42. The antero-posterior lip position may be assessed with the help of a line from :
- (A) Subnasale to Pogonion (lower facial plane)
(B) Subnasale to Point B
(C) Subnasale to Menton
(D) Point A to point B
43. Who for the first time correlated the lower incisors and chin to the NB plane ?
- (A) Tweed
(B) Angle
(C) Begg
(D) Holdaway

44. The point where the anterior wall of the pituitary fossa crosses the inferior surface of the anterior glenoid process is known as :
- (A) Bolton point
 - (B) Andrews point
 - (C) Hunter point
 - (D) Walker point
45. Who among the following has introduced a technique that combines the Cephalometric radioagraphic tracing with photographs ?
- (A) Jacobson
 - (B) Grumman's
 - (C) Ricketts
 - (D) Henderson
46. Which of the following lateral Cephalometric landmark show high error possibilities on X-axis/coordination ?
- (A) ANS
 - (B) Orbitale
 - (C) Bolton point
 - (D) Articulare
47. Which of the following is not associated with supernumerary teeth ?
- (A) Gardner Syndrome
 - (B) Apert Syndrome
 - (C) Sequel Syndrome
 - (D) CLP
48. Hemifacial microsomia occurs due to the :
- (A) Defect in epithelial tissue repair
 - (B) Defect in the germ layer formation and initial organization of structure
 - (C) Defect in neural tube formation
 - (D) Defect in the origin, migration and interaction of cell layers
49. The most important reason for planning for placing an alveolar bone graft in CLP patient is :
- (A) Make eruptive pathway for permanent canine
 - (B) Improve pronunciation
 - (C) Improve breathing efficiency
 - (D) Improve feeding

50. Increase in depth of hard palate is seen in which of the following craniofacial disorder(s) ?
- (A) Down's syndrome
 - (B) Craniofacial dysostosis
 - (C) Marfan's syndrome
 - (D) All of these
51. Load deflection rate of Beta Titanium wires when compared to stainless steel is :
- (A) 1/4 of stainless steel
 - (B) 1/8 of stainless steel
 - (C) 1/16 of stainless steel
 - (D) 1/2 of stainless steel
52. Type 3 Cu-NiTi wires are ideally indicated in which case :
- (A) Forces generated are of very low
 - (B) Indicated in patients with low and normal pain threshold
 - (C) Forces generated are very high
 - (D) Patients requiring rapid tooth movement
53. Hook's law is not applicable for which of the following orthodontic wire ?
- (A) NiTi
 - (B) A-NiTi
 - (C) TMA
 - (D) Stainless steel
54. NiTi wire exhibits super elasticity due to which of the following ?
- (A) Stress induced changed from Martensitic to Austenitic phase
 - (B) Stress induced changed from Austenitic to Martensitic phase
 - (C) Temperature induced changed from Martensitic to Austenitic phase
 - (D) Temperature induced changed from Austenitic to Martensitic phase
55. "Sentalloy" is a brand name of which of the following orthodontic material ?
- (A) TMA wire
 - (B) Beta titanium wire
 - (C) Super elastic Chinese NiTi wire
 - (D) Super elastic Japanese NiTi wire

56. Which of the following is the correct sequence in producing/manufacturing of orthodontic wire ?

- (A) Melting → Ingot → Rolling → Drawing
- (B) Ingot → Melting → Rolling → Drawing
- (C) Ingot → Rolling → Drawing → Melting
- (D) Melting → Ingot → Drawing → Rolling

57. Orthodontic wire hardening at low temperature would enhance all except :

- (A) Stiffness
- (B) Brittleness
- (C) Ductility of the wire
- (D) Resiliency of the wire

58. Stress relieving changes of orthodontic wires depend on :

- (A) Time
- (B) Temperature
- (C) Both of these
- (D) None of these

59. Tempering of stainless steel will cause :

- (A) Reduce ductility
- (B) Increase toughness
- (C) Increase ductility
- (D) Decrease toughness

60. Difference in loading and unloading curve of super elastic materials like A-NiTi is known as :

- (A) Hysteresis
- (B) Hook's law
- (C) Syneresis
- (D) Imbibition

61. Which is not the correct principle of wire bending ?

- (A) Plier to be held by palm grip
- (B) Sharp bends are to be avoided
- (C) Plier and fingers are used to bend the wire
- (D) Bends are given by pushing the wire, rather than pulling it

62. What thickness of wire is used in construction of a self-supported canine retractor ?
- (A) 0.7 mm
(B) 0.8 mm
(C) 0.9 mm
(D) 1.0 mm
63. Water requirement per 100 g powder of dental stone is :
- (A) 50 cc
(B) 30 cc
(C) 24 cc
(D) 28 cc
64. Which among the following is not a natural abrasive material ?
- (A) Arkansas
(B) Pumice
(C) Alumina
(D) Quartz
65. In transfacial plane the face is divided into how many parts ?
- (A) 2
(B) 3
(C) 5
(D) 7
66. In an ideal situation the ratio between three proportions of face in vertical plane from above downwards is :
- (A) 34 : 33 : 33
(B) 35 : 30 : 35
(C) 30 : 35 : 35
(D) 25 : 50 : 25
67. A tooth which failed to fully erupt into the oral cavity during its developmental time and is now not expected to erupt is :
- (A) Impacted
(B) Submerged
(C) Un-erupted
(D) Ankylosed
68. Middle facial height is measured from :
- (A) Hairline to Subnasale
(B) Glabella to Menton
(C) Glabella to Subnasale
(D) Subnasale to Menton

69. Post orthodontic anterior crowding is due to :
- (A) Impacted canine
 - (B) Arch length deficiency
 - (C) Impacted 3rd molar
 - (D) Large tongue
70. Organic content of the bone is :
- (A) 90% non-collagenous protein
 - (B) 90% Type – I collagen
 - (C) 45% non-collagenous protein
 - (D) 45% Type – I collagen
71. A mother reports to you with a chief complaint of pain in upper front tooth on chewing in her child aged 11 years. She also gives alleged H/O trauma to the tooth with cricket ball about 3 days back. On examination, the tooth is not fractured clinically and periapical gingiva is healthy. What will be your first investigation in this case ?
- (A) An IOPA radiograph
 - (B) Vitality test of the offending tooth
 - (C) Electrical conductance test for pulp
 - (D) Flowcytometry for pulpal circulation
72. While calculating total dosage for intra-nasal Midazolam sedation for children, which factor should be given importance ?
- (A) Body weight
 - (B) Flavour of the salt
 - (C) Age of the child
 - (D) Chronicity of pain
73. Which is the best test to find out correlation between series of two numerical variables ?
- (A) t-test
 - (B) Chi-square test
 - (C) Pearson's Correlation
 - (D) p-test

74. When Precision of a study needs to be kept high ?

- (A) Our sample should be small if SD is high
- (B) Our sample should not be large so that variance is low
- (C) Our sample should not be large to have low standard error of mean
- (D) Sample should be large enough keeping in mind the SD of the population

75. To restrict the mandibular growth in a skeletal class III patient, the minimum amount of force application from chin cup should be :

- (A) 1.5-2 gm/mm² area of condylar head
- (B) 6-7 gm/mm² area of condylar head
- (C) 15-20 gm/mm² area of condylar head
- (D) 25-35 gm/mm² area of condylar head

76. You have oral health data from a group of people from New Delhi and a group of people from Chennai.

Now you wish to know whether there is any statistical difference in the proportion of people from each city who have gingivitis. Which statistical test would you employ ?

- (A) Regression Analysis
- (B) Chi-square test
- (C) One-way Analysis of Variance (ANOVA)
- (D) T-test

77. The total number of centers of bone growth located in the hand wrist X-rays for the determination of skeletal growth are :

- (A) 7
- (B) 5
- (C) 11
- (D) 51

78. The percentage of Maxillary growth remaining after 10 years of age is :

- (A) 45%
- (B) 10%
- (C) 25%
- (D) 35%

79. The Functional Matrix concept as revisited by Moss does not include :

- (A) Connected Cellular Network (CCN)
- (B) Mechanotransduction
- (C) Epigenetic-Epithesis
- (D) Septopremaxillary ligament development

80. The implants were used by Bjork for predicting facial growth changes.

This approach is called as :

- (A) Longitudinal approach
- (B) Metric approach
- (C) Structural approach
- (D) Computerized prediction

81. Habits which are dropped from child's behaviour pattern as soon as he/she matures are known as :

- (A) Compulsive habits
- (B) Harmful habits
- (C) Pressure habits
- (D) Non-compulsive habits

82. The 7th Key to Normal Occlusion is :

- (A) Molar relation
- (B) Occlusal plane
- (C) Crown angulations and inclination
- (D) Bolton ratio

83. The copper NiTi wires are not available in the temperature range of :

- (A) 15°
- (B) 29°
- (C) 35°
- (D) 40°

84. Distraction of canine in orthodontics was introduced by :

- (A) Liv
- (B) Chang
- (C) McNamara
- (D) Ricketts

85. The two blocks in the Twin Block functional appliance are angulated at :

- (A) 75°
- (B) 70°
- (C) 65°
- (D) 80°

86. Class III skeletal growth pattern is characterized by all except :
- (A) Acute cranial base angle
 - (B) Anteriorly positioned articular
 - (C) Middle cranial fossa align posteriorly and superiorly
 - (D) Males having more proclined maxillary incisors than females
87. In a bonded palatal expansion (Hyrax) appliance the wire framework is made of :
- (A) 0.040 inch stainless steel
 - (B) 0.040 inch Elgiloy
 - (C) 0.032 inch stainless steel
 - (D) 0.036 inch stainless steel
88. All these appliances are fixed functional appliance :
- (A) Churio Jumper
 - (B) MPA
 - (C) Pendulum
 - (D) Herbst
89. Impacted maxillary canines show all the following except :
- (A) Palatal = buccal = 85% = 15%
 - (B) Unilateral : bilateral = 4 : 1
 - (C) F : M = 1 : 4
 - (D) Resorption of root of lateral incisor in females is more than male
90. The weights of different components of the PAR index are correct except :
- (A) Overjet (Score \times 6)
 - (B) Overbite (Score \times 2)
 - (C) Midline (score \times 4)
 - (D) Buccal segment (score \times 2)
91. Lingual Orthodontics was introduced by :
- (A) Kurz
 - (B) Andrews
 - (C) Kesling
 - (D) Alexander

92. Which Immunoglobulin level is higher in secondary humoral response ?
- (A) Ig E
 - (B) Ig A
 - (C) Ig M
 - (D) Ig G
93. The experiments for "Caries Vaccine" are mainly involving which immunoglobulin ?
- (A) Ig A
 - (B) Ig G
 - (C) Ig M
 - (D) Ig E
94. Enamel of primary and permanent teeth differ in :
- (A) Enamel prism arrangement
 - (B) Mineral content
 - (C) Enamel is same in primary and permanent dentition, only dentin is different
 - (D) None of these
95. The infant's gum pad is divided into how many segments ?
- (A) Two in each quadrant
 - (B) Three in each quadrant
 - (C) Two in each jaw
 - (D) Five in each quadrant
96. Among the common food items, fluoride is found in higher PPM in :
- (A) Pineapple
 - (B) Tea
 - (C) Sea Fish
 - (D) Coconut Water
97. Fluoride is carried in the blood via :
- (A) Plasma
 - (B) RBC's
 - (C) Both Plasma and RBC
 - (D) WBC's
98. Which of the following is not a measurement of central tendency ?
- (A) Mode
 - (B) Mean
 - (C) Standard deviation
 - (D) Median

99. Chi-square test is a :
- (A) Test of standard error between two proportions
 - (B) Test for measurement of significance in a qualitative date
 - (C) Test for measurement of significance and probability in quantitative date
 - (D) Test for finding out the significance of difference between two proportions
100. Patients with Down's Syndrome normally have :
- (A) IQ score above 80
 - (B) Brachycephalic skull
 - (C) Stiff muscles
 - (D) All of these
101. The force at the bracket is equivalent to :
- (A) A moment that cause the teeth to rotate
 - (B) A force at the centre of the resistance
 - (C) The force at the centre of rotation of tooth
 - (D) A moment that causes bodily tooth movement
102. Center of resistance of a tooth depends on all except :
- (A) Root morphology
 - (B) Root length
 - (C) Root surface area
 - (D) Level of gingiva
103. Which of the phenomenon is important during bone regeneration ?
- (A) Streaming potential
 - (B) Piezoelectric phenomenon
 - (C) Field effect
 - (D) Hyalinization
104. Which is the best example of absolute anchorage in Class II patients ?
- (A) Occipital anchorage
 - (B) Transpalatal arch
 - (C) Nance palatal arch
 - (D) Translingual arch

105. Use of chin cup on seeing signs of a developing prognathism is :

- (A) A corrective procedure
- (B) A definitive procedure
- (C) An interceptive procedure
- (D) An invasive procedure

106. Burlington Growth Study was conducted by :

- (A) Charles Francis Brush
- (B) Frank Popovich
- (C) Bjork
- (D) McNamara

107. Down's polygon was suggested by :

- (A) Hellman
- (B) Vorhies and Adams
- (C) Nanda R
- (D) William Downs

108. Much of Cephalometric errors are related to :

- (A) Increased Exposure time
- (B) Strain on neck

- (C) Overlap of landmarks
- (D) Low contrast on the films

109. To confirm the growth activity during unilateral condylar hyperplasia the following is recommended :

- (A) CBCT
- (B) Stereophotogrammetry
- (C) Technetium scan
- (D) 3D CT

110. Oxycephaly is due to fusion of :

- (A) Sagittal and frontal suture
- (B) Coronal and sagittal suture
- (C) Coronal and mid-sagittal suture
- (D) Coronal and frontal suture

111. The facial cusps of mandibular molars are :

- (A) Supporting cusps
- (B) Non-supporting cusps
- (C) Non-centric cusps
- (D) Guiding cusps

112. Load deflection rate of Beta Titanium wires is :

- (A) 1/4 of stainless steel
- (B) 1/8 of stainless steel
- (C) 1/16 of stainless steel
- (D) 1/2 of stainless steel

113. Type 3 Cu-NiTi wires are ideally indicated :

- (A) Forces generated are of very low
- (B) Indicated in patients with low and normal pain threshold
- (C) Forces generated are very high
- (D) Patients requiring rapid tooth movement

114. The outer most layer of optiflex wire is made up of :

- (A) Silicone dioxide
- (B) Silicone resin
- (C) Nylon
- (D) Plastic coated

115. Aspirin is a teratogen for :

- (A) Acromegaly

(B) Apert's Syndrome

(C) Cruzon Syndrome

(D) Cleft lip palate

116. The submucosal cleft is best demonstrated by :

- (A) Occlusal laminograph
- (B) Nasopharyngoscopy
- (C) Cephalograph laminographs
- (D) Ultraviolet fibre optic

117. In OSA Patients there is decreased airway space due to :

- (A) Increase activity of tensor veli palatini muscle
- (B) Increase activity of tensor veli palatini and genioglossus muscles
- (C) Decreased activity of tensor veli palatini and genioglossus muscles
- (D) Increase activity of tensor veli palatini and decreased activity of genioglossus muscles

118. The gold standard test to diagnose

OSA is :

(A) Apnoea-Hypopnoea Index (AHI)

(B) Polysomnogram

(C) MRI

(D) CT scans

119. The recommended latency period in

distraction protocol is :

(A) 1 to 2 days

(B) 3 to 5 days

(C) 5 to 7 days

(D) 7 to 10 days

120. Following are the non-radiographic methods of mixed dentition analysis

except :

(A) Tanaka and Johnson analysis

(B) Moyer's analysis

(C) Ballard and Willie's analysis

(D) Hakaba's analysis

121. Point D is used in which of the following Cephalometric analysis ?

(A) Downs

(B) Tweed

(C) Steiner

(D) McNamara

122. The term "disease of civilization" was

given by :

(A) Corrucini

(B) Grabber

(C) Sussoni

(D) Moyers

123. The following are bilateral landmarks

except :

(A) Porion

(B) Gonion

(C) Gnathion

(D) Orbitale

124. Lymphoid tissues shows what

percentage of growth from 6-12

years ?

(A) 50%

(B) 100%

(C) 150%

(D) 200%

125. A patient in a mixed dentition reveals delayed eruption of permanent teeth, incomplete root formation of permanent teeth with a large tongue. The child may be suspected to be suffering from :

- (A) Addison's disease
- (B) Hypothyroidism
- (C) Hyperthyroidism
- (D) Van Recklinghausen disease

126. Speech defects associated with cleft palate are due to :

- (A) Improper seal between palate and nasal cavity
- (B) Improper contact between tongue and epiglottis
- (C) Poor lip musculature
- (D) Inability of tongue to contact teeth

127. Which of the following is not a constituent of flux ?

- (A) Hydrofluoric acid
- (B) Borax

(C) Boric acid

(D) Potassium fluoride

128. Fusion temperature of silver solder is in the range of :

- (A) 690-870 degree C
- (B) 275-450 degree C
- (C) 620-700 degree C
- (D) 750-850 degree C

129. Which of the following teeth has maximum inclination in ideal occlusion ?

- (A) Maxillary central incisor
- (B) Maxillary lateral incisor
- (C) Maxillary canine
- (D) Mandibular canine

130. Which of the following synchondrosis has a significant influence on overall facial growth ?

- (A) Spheno-occipital
- (B) Spheno-ethmoidal
- (C) Inter-sphenoid
- (D) Inter-ethmoidal

131. The centre of resistance of a healthy tooth is :

- (A) 1/4 the length of the root from the alveolar crest to the apex
- (B) 2/5 the length of the root from the alveolar crest to the apex
- (C) 1/8 the length of the root from the alveolar crest to the apex
- (D) 1/2 the length of the root from the alveolar crest to the apex

132. The arch form most closely corresponds to the trifocal ellipse are also known as :

- (A) Mushroom arches
- (B) Ricketts arches
- (C) Brader arches
- (D) Bonwill-Hawley arches

133. The transformation temperature of Cu-NiTi wires could be varied by :

- (A) Ni and Ti content
- (B) Ti content only
- (C) Cu content only
- (D) Ni content only

134. Prevalence of Class II malocclusion was found to be high among :

- (A) Mongoloids
- (B) Negroes
- (C) Koreans
- (D) Caucasians

135. Treatment Priority Index was developed by :

- (A) Summers (1966)
- (B) Grainger(1967)
- (C) Salzmann(1968)
- (D) Cons et al (1986)

136. Hypodontia/missing teeth results in distortion of the following sounds :

- (A) (/t, d)
- (B) (/s, zt, d, n, l)
- (C) (/j, sh, ch/)
- (D) (/d, n/l)

137. First clinical investigator to suggest bone bending theory was :

- (A) Baumrind
- (B) Grimm
- (C) Oppenheim
- (D) Farrar

138. Which of the following tooth movement is most commonly associated with external root resorption ?

- (A) Intrusion
- (B) Translation
- (C) Torquing
- (D) Intrusion and torquing

139. Ricketts canine retraction spring is normally constructed with :

- (A) 0.016×0.016 inch Blue Elgiloy
- (B) 0.016×0.022 inch Blue Elgiloy
- (C) 0.016×0.022 inch TMA wire
- (D) 0.016×0.016 inch SS wire

140. Malocclusion which can be progressive is :

- (A) Class I
- (B) Class II
- (C) Class III
- (D) Combination of 1 and 3

141. Which of the statement is not correct for Nd : YAG Laser ?

- (A) It is useful in periodontal surgery
- (B) It delivers the energy in free running pulse mode
- (C) It can easily be absorbed by pigmented tissue
- (D) Its wave length is 10,600 nm

142. Models for invisalign are made by the process called :

- (A) Stereoangiography
- (B) Stereography
- (C) Stereolithography
- (D) Steriography

143. Inner bow of the face bow of the head gear is made up of :

- (A) 0.045" and 1.25" round stainless steel wire
- (B) 0.051" and 0.7" round stainless steel wire
- (C) 0.062" and 0.9" round stainless steel wire
- (D) 4.0" and 1.0" round stainless steel wire

144. Acid etch technique was introduced in the year :

- (A) 1935
- (B) 1945
- (C) 1955
- (D) 1965

145. What formula is used for spring in relation to diameter and strength of wire ?

- (A) $F = D^9/L^9$
- (B) $F = D^1/L^1$
- (C) $F = D^4/L^3$
- (D) $F = D^8/L^8$

146. If the Quad helix appliance is activated at the center of anterior bridge, the brings about :

- (A) Anterior expansion
- (B) Posterior expansion
- (C) Lateral expansion
- (D) Dimensional expansion

147. Which of the following is not an intra oral distalization appliance ?

- (A) Schwartz appliance

(B) Wilson's distalizing arch

(C) Distal jet appliance

(D) Sagittal appliance

148. Baker's anchorage is also known as :

(A) Intra-maxillary anchorage

(B) Intraoral anchorage

(C) Extraoral anchorage

(D) Inter-maxillary anchorage

149. Neural tissue reaches complete maturity at the age of :

(A) 6-7 years

(B) 10-12 years

(C) 15-17 years

(D) 18 years

150. Who proposed the structure of DNA molecule ?

(A) Watson and Crick

(B) Finch and Klung

(C) Sulton and Boveri

(D) Gregor Mandel

151. Process by genetic information is actually converted into protein synthesis is termed as :

- (A) Transcription
- (B) Transmission
- (C) Translation
- (D) Mutation

152. Carpal bones are arranged in :

- (A) Two rows : left and right
- (B) Two rows : proximal and distal
- (C) Three rows : right, left and center
- (D) They have no relation

153. Ossification of ulnar sesamoid begins :

- (A) At birth
- (B) Prenatally
- (C) At onset of pubertal growth spurt
- (D) Postnatal at 3 years of age

154. Center of rotation during intrusion is :

- (A) At infinity
- (B) At middle 3rd of the root

- (C) Near CEJ
- (D) Outside the tooth

155. Which type of collagen is synthesized by pulp fibroblast cells ?

- (A) Type I only
- (B) Type I and II
- (C) Type I and III
- (D) Type II and III

156. Which is the predominant form of cytokine in human periapical lesions ?

- (A) IL-1
- (B) IL-6
- (C) IL-8
- (D) TNF

157. Cementum is more resistant than bone to resorption – a theory as to why this is true is that :

- (A) Cementum is more mineralized than bone
- (B) Cementum contains an anti-resorptive factors
- (C) Bone is vascular cementum is a vascular
- (D) Fiber patterns in cementum are different than in bone and tend to be more resistant to clast type cells

158. The unit of measurement of moment of force is :
- (A) Newtons
 - (B) Grams
 - (C) Grams Millimeters
 - (D) Grams / Millimeters
159. Habits which are dropped from Child's behaviour pattern as he matures are known as :
- (A) Compulsive habits
 - (B) Harmful habits
 - (C) Pressure habits
 - (D) Non-compulsive habits
160. Defect which does not cause mouth breathing :
- (A) Deviated nasal septum
 - (B) Thick nasal septum
 - (C) Nasal polyps
 - (D) Recurrent URI
161. In Fishman's method, appearance of adductor sesamoid occurs at :
- (A) SMI 4
 - (B) SMI 11
 - (C) SMI 9
 - (D) SMI 7
162. Who suggested the rule of 10 ?
- (A) Veau
 - (B) Millard
 - (C) Kernahan
 - (D) Davis and Ritchie
163. While undertaking a clinical study to compare two different methods of molar distalization, the statistical precision of the study can be increased by :
- (A) Increasing the duration of the study
 - (B) Increasing the sample size
 - (C) Using random sampling
 - (D) Comparing it against a "gold standard" therapy
164. The occurrence of malocclusion in a given population can be best described by the term :
- (A) Prevalence Rate
 - (B) Incidence Rate
 - (C) Morbidity
 - (D) Probability

165. A set of data will be considered as distributed normally if :

- (A) The data is equally distributed in whole range
- (B) When mean, mode and median coincide at one point
- (C) When positive values are double the negative so as to have positive mean
- (D) When positive values are four times the negative to have positive mean

166. In a study of measurement of arch with before and after two types of maxillary expansion systems, the investigator does not know about the therapy which has been instituted on the particular subject, the observation method used in the study will be called as :

- (A) Randomized controlled trial
- (B) Double blind study
- (C) Single blind study
- (D) Non-randomized trial

167. In order to conduct a study of prevalence of malocclusion in India, which of the following method of sampling will be most appropriate ?

- (A) Cluster Sampling
- (B) Multistage Random Sampling
- (C) Simple Random Sampling
- (D) Systematic Multistage Sampling

168. Which of the following parameter is the most simple commonly used measure of variation in a quantitative data ?

- (A) Standard Deviation
- (B) Mode
- (C) Range
- (D) Mean

169. Which of the following statement is not true for a case control study ?

- (A) Useful for studying rare disease
- (B) Useful for studying diseases with long latency periods
- (C) Can explore several potential risk factors for disease simultaneously
- (D) Can only be prospective

170. All of the following are true in a Randomized Control Trial (RCT) except :

- (A) Baseline characteristics of intervention and control groups should be similar
- (B) Investigator's bias is minimized by double blinding
- (C) The sample size required depends on the hypothesis
- (D) The drop-outs from the trial should be excluded from the analysis

171. When a population is skewed to the left or right with a very long tail, what is the best measure to use for central tendency ?

- (A) The population mean
- (B) The population mode
- (C) The population median
- (D) The population standard deviation

172. If the mean, median and mode for a given population are all equal, then we know that its distribution is :

- (A) Skewed to the left
- (B) Skewed to the right
- (C) Normally distributed
- (D) Symmetric

173. In biostatistics 'Mode' is defined as :

- (A) Measure of average in a group
- (B) Number of values closest to the arithmetic mean
- (C) When values are arranged in ascending or descending order, the most centrally placed value
- (D) Most frequently occurring observation

174. Standerwick et al proposed which of the following point on a cephalogram for superimpositions ?

- (A) Xi point
- (B) Registration point
- (C) I-point, U-point and Ic
- (D) Bolton point

175. When a wire with off centre V-bend is inserted into two brackets on two teeth :

- (A) The greater angulation of the wire causes a lesser moment on the tooth closer to the V-bend
- (B) The smaller angulation of the wire causes a greater moment in the opposite direction
- (C) The counterclockwise moment on the appliance is generated as a result of an intrusive force on the canine with long side of V-bend
- (D) The counterclockwise moment on the appliance is generated as a result of an intrusive force on the molar with small side of V-bend

176. Development of normal speech would show vocal play development by :

- (A) 0-8 weeks

- (B) 8-20 weeks
- (C) 16-30 weeks
- (D) 25-50 weeks

177. The two palatal shelves fuse by :

- (A) 32 days from conception
- (B) 14 days from conception
- (C) 54 days from conception
- (D) 60 days from conception

178. Kinetic friction is :

- (A) Resistance to movement of the object
- (B) That exists before one of the objects starts to move
- (C) The amount of force necessary to start movement of an object in a static state
- (D) Kinetic friction which is greater than static frictional force starts in atypical friction graph

179. Anchorage value for upper first molar according to Profit is :

- (A) 475
- (B) 450
- (C) 533
- (D) 282

180. The elastomeric chain lose original force at the end of 24 hours is :

- (A) 10% to 20%
- (B) 20% to 30%
- (C) 30% to 40%
- (D) 50% to 70%

181. In BSSO by Obwegesser and Trauner technique the osteotomy of mandible involve :

- (A) Ramus
- (B) Ramus, body
- (C) Ramus, body, inferior border
- (D) Subcondylar region

182. Cranial vault follows the growth curve of :

- (A) Neural tissue
- (B) Dental tissue

- (C) Somatic tissue
- (D) Genital

183. Which of the following shows 200% of its adult growth by age 9-10 years ?

- (A) Lymphoid
- (B) General
- (C) Genital
- (D) Neural

184. Spheno occipital synchondrosis closes at :

- (A) Birth
- (B) 5-10 years
- (C) 12-18 years
- (D) 18-25 years

185. Identify the incorrectly matched item :

- (A) Ethmoid – Purely endochondrial bone
- (B) Parietal – Purely membranous bone
- (C) Maxillary – Both endochondrial and intramembranous
- (D) Nasal – Purely membranous bone

186. A flat palate at birth changed into vault shaped in adults by :

- (A) Resorption in the vault
- (B) Growth of alveolar bone
- (C) Opposition at tuberosity region
- (D) Growth of maxillary sinus

187. When permanent canines are lost prematurely, the permanent incisors may drift :

- (A) Labially
- (B) Lingually
- (C) Mesially
- (D) Distally

188. Dental arch form is finally determined by :

- (A) Facial type
- (B) Growth pattern
- (C) Angles classification
- (D) Balance between intraoral extraoral muscle forces

189. Dolicho cephalic refers to :

- (A) Long-wide faces
- (B) Long-narrow faces
- (C) Short-wide faces
- (D) Short-narrow faces

190. In lateral cephalometrics the distance at which film is placed from mid saggital plane :

- (A) 10 cm
- (B) 12 cm
- (C) 15 cm
- (D) 18 cm

191. If maxillary canines are placed forward to orbital plane. They are said to be :

- (A) Protraction
- (B) Retraction
- (C) Abstraction
- (D) Contraction

192. "Differential force" philosophy is related to :
- (A) Standard edgewise mechanics
 - (B) Preadjusted edgewise mechanics
 - (C) Begg mechanics
 - (D) Modern edgewise mechanics
193. Supreme grade A. J. Willcock wires are :
- (A) Austenitic SS wires
 - (B) Work hardened ferrite SS wires
 - (C) Pulse straightened austenitic SS wires
 - (D) Spinner straightened martensitic SS wires
194. Which teeth has maximum anchorage value ?
- (A) Mandibular 1st molar
 - (B) Maxillary 1st molar
 - (C) Maxillary canine
 - (D) Mandibular 2nd molar
195. Which of the following is an active component in fixed appliance ?
- (A) Brackets
 - (B) Lingual hook
 - (C) Arch wire
 - (D) Lingual button
196. How many stages are there in Begg technique of treatment ?
- (A) 1
 - (B) 2
 - (C) 3
 - (D) 4
197. Bite registration for functional appliance is difficult in patient suffering from :
- (A) Bruxism
 - (B) Cerebral palsy
 - (C) Ehlers-Danlos syndrome
 - (D) Childhood leukemia
198. Which of the following is not a maximum anchorage case ?
- (A) Class-I molar relation with 2-4 mm arch length discrepancy
 - (B) Class-I molar relation with 6-8 mm arch length discrepancy
 - (C) Class-I molar relation with 10-12 mm arch length discrepancy
 - (D) Class-I Bimaxillary protrusion

199. 3rd order bends in the standard edgewise technique are given for :

- (A) Buccolingual tooth movement
- (B) Mesiodistal tooth movement
- (C) Axial tooth movement
- (D) Space closure

200. Which is most commonly used antiseptic mouth wash during fixed orthodontic treatment ?

- (A) Providine iodine
- (B) Chlorohexidine gluconate
- (C) Hydrogen peroxide
- (D) Cetylpridium

13. According to envelope of "limit of treatment" by Ackerman and Proffit

combined orthodontic and surgical treatment can bring about a maximum of

- (A) 6 mm of buccal intrusion of maxilla
- (B) 5 mm of sagittal advancement of maxilla
- (C) 4 mm of buccal segment extrusion in mandible
- (D) 3 mm of buccal segment expansion in mandible

14. In a patient with cleft palate alveolar bone grafting should be done :

- (A) After expansion of maxilla and correction of cross bite and after cuspid eruption

15. Angle's classification of malocclusion is an example of which of the following type of norm ?

- (A) Biometric
- (B) Objective
- (C) Subjective
- (D) Diagnostic

16. The assessment of the basal relationship through angle ANB was introduced by :

- (A) Jacobson
- (B) Reidel
- (C) Wits
- (D) Broadbent

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