



## SAUDI BOARD RESIDENCY TRAINING PROGRAM

### ORTHODONTICS

#### Final Written Examination

##### Examination Format:

A Saudi board final specialty written examination shall consist of two papers each with 100-125 Single Best Answer MCQs. Up to 10% unscored items can be added for pretesting purposes.

##### Passing Score:

The passing score is 70%. However, if the percentage of candidates passing the examination before final approval is less than 70%, the passing score must be lowered by one mark at a time aiming at achieving 70% passing rate or 65% passing score whichever comes first. Under no circumstances can the passing score be reduced below 65%.

### Suggested Reading List for Final Written Examination:

This list should not serve as a single preparatory source, as other literature and textbooks are recommended in addition to the suggested references .

Questions of the Final Examination may or may not be based on the suggested reading list and no single reference in the suggested reading list contains the indisputable answer to any of the questions.

#### TEXT BOOKS:

- Proffit WR. CONTEMPORARY ORTHODONTICS. 6<sup>th</sup> edition, St. Louis,MO, USA, Mosby, Inc., 2018.
- Radiographic cephalometry from basics to 3-D imaging, AlexanderJacobson, Richard Jacobson , 2<sup>nd</sup> Edition.
- Orthodontics Current principals and techniques, Graber, Vanarsdall,and Vig, 5<sup>th</sup> Edition.
- Several articles as illustrated in the blueprint “attached examples”.

#### LITERATURE:

##### Growth and development:

- Thilander B. Basic mechanisms in craniofacial growth. Acta OdontolScand 53(3):144-151, 1995.
- Bjork, A. Prediction of Mandibular Rotation. Am. J. Orthod. 55: 585-599,1969.
- Dager MM, McNamara JA, Baccetti T, Franchi L. Aging in thecraniofacial complex. Angle Orthod 78(3):440-444, 2008.
- Pecora NG, Baccetti T, McNamara JA Jr. The aging craniofacial complex: a longitudinal cephalometric study from late adolescence to late adulthood. Am J Orthod Dentofacial Orthop 134(4):496-505, 2008.
- Ranly DM. Craniofacial growth. Dent Clin North Am 44(3):457-470,2010.
- Mossey PA. The heritability of malocclusion: part 2. The influence ofgenetics in malocclusion. Br J Orthod 26(3):195-203, 1999.
- Derya Germec Cakan, Feyza Ulkur, and Tulin (Uğur) Taner The geneticbasis of facial skeletal characteristics and its relation with orthodontics Eur J Dent. 2012 July; 6(3): 340–345.
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- Thilander, B. (2017). Craniofacial growth and development. EssentialOrthodontics, 30, 25. “BOOK”
- Wishney, M., Darendeliler, M., & Dalci, O. (2018). Craniofacial growthstudies in orthodontic research-lessons, considerations and controversies. Australasian Orthodontic Journal, 34(1), 61.

##### Orthodontic Diagnosis and Treatment Planning:

- Doppel DM, Damon WM, Joondeph DR, Little RM. An investigation ofmaxillary superimposition techniques using metallic implants. Am J Orthod Dentofacial Orthop. 1994 Feb;105(2):161-8.
- Nielsen IL. Maxillary superimposition: a comparison of three methodsfor cephalometric evaluation of growth and treatment change. Am J Orthod Dentofacial Orthop. 1989 May;95(5):422-31.
- Naini FB, Gill DS. Facial aesthetics: 2. Clinical assessment. Dent Update35(3):159-162, 164-166, 169-170, 2008.
- Bishara SE, Burkey PS, Kharouf JG. Dental and facial asymmetries: areview. Angle Orthod 64(2):89-98, 1994.
- Charles J. Burstone. Diagnosis and treatment planning of patients withasymmetries. Semin Orthod 4(3):153-164, 1998.
- Janson, G., de Lima, K. J. R. S., Woodside, D. G., Metaxas, A., de Freitas, M. R., & Henriques, J. F. C. (2007). Class II subdivision malocclusion types and evaluation of their asymmetries. American journal of orthodontics and dentofacial orthopedics, 131(1), 57-66.
- Nguyen, T., Cevidanes, L., Franchi, L., Ruellas, A., & Jackson, T. (2018). Three-dimensional mandibular regional superimposition in growing patients. American Journal of Orthodontics and Dentofacial Orthopedics, 153(5), 747-754.
- Kouvelis G, Dritsas K, Doulis I, Kloukos D, Gkantidis N. Effect of orthodontic treatment with 4 premolar extractions compared with nonextraction treatment on the vertical dimension of the face: A systematic review. Am J Orthod Dentofacial Orthop. 2018 Aug;154(2):175-187.

### Growth Modification:

- Cozza P, Baccetti T, Franchi L, De Toffol L, McNamara JA. Mandibular changes produced by functional appliances in Class II malocclusion: a systematic review. *Am J Orthod Dentofacial Orthop* 129(5):599, e1-12,2006.
- Brosh T, Portal S, Sarne O, Vardimon AD. Unequal outer and inner bow configurations: comparing 2 asymmetric headgear systems. *Am J Orthod Dentofacial Orthop* 128(1):68-75, 2005.
- Mandall, N., Cousley, R., DiBiase, A., Dyer, F., Littlewood, S., Mattick, R., & Shargill, I. (2016). Early class III protraction facemask treatment reduces the need for orthognathic surgery: a multi-centre, two-arm parallel randomized, controlled trial. *Journal of orthodontics*, 43(3), 164-175.

### Treatment Modalities:

- Marshall SD, Southard KA, Southard TE. Early Transverse Treatment. *Semin Orthod* 11(3):130-139, 2005.
- Eustáquio A. Araújo. Diagnostic Protocol In Cases Of Congenitally Missing Maxillary Lateral Incisors. *World J Orthod* 2006;7:376–388.
- Bills DA, Handelman CS, BeGole EA. Bimaxillary dentoalveolar protrusion: traits and orthodontic correction. *Angle Orthod* 75(3):333- 339, 2005.
- Kokich VG. Surgical and orthodontic management of impacted maxillary canines. *Am J Orthod Dentofacial Orthop* 126:278-283, 2004.
- Andrew Schmidt, Vincent Kokich, Peridontal response to early uncovering autonomous eruption, and orthodontic alignment of palatally impacted maxillary canines. *Am J Orthod Dentofacial Orthop* 2007; 131:449-55.
- Elliott M. Moskowitz, Ronniette C. Garcia, The management of palatally displaced maxillary canines: Considerations and challenges. *Semin Orthod* 2014;20:46-58.
- Vaden JL, Pearson LE. Diagnosis of the vertical dimension. *Semin Orthod* 8(3):120-129, 2002.
- Turley PK. Orthodontic management of the short face patient. *Semin Orthod* 2(2):138-153, 1996.
- Budi Kusnoto and Bernard J. Schneider. Control of the Vertical Dimension. *Semin Orthod* 2000;6:33-42
- Thomas J Cangialosi, Skeletal Morphologic features of anterior open bite. *Am J Orthod Dentofacial Orthop* 1984; 85:28-36.
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- Rinchuse DJ, Kandasamy S, Sciote J. A contemporary and evidence- based view of canine protected occlusion. *Am J Orthod Dentofacial Orthop*. 2007 Jul;132(1):90-102.
- Donald J. Rinchuse, and Jeffrey T. McMinn, Summary of evidence- based systematic reviews of temporomandibular disorders. *Am J Orthod Dentofacial Orthop* 2006;130:715-20
- Jeffrey P. Okeson. Evolution of occlusion and temporomandibular disorder in orthodontics: Past, present, and future. *Am J Orthod Dentofacial Orthop* 2015;147:S216-23)
- Tsolakis AI, Kalavritinos M, Bitsanis E, et al: Reliability of different radiographic methods for the localization of displaced maxillary canines. *American Journal of Orthodontics and Dentofacial Orthopedics* 153(2):308-314, February 2018
- Sadowsky, C., & Polson, A. M. (1984). Temporomandibular disorders and functional occlusion after orthodontic treatment: results of two long-term studies. *American journal of orthodontics*, 86(5), 386-390.

### Retention and Stability:

- Janson, G., Araki, J., Estelita, S., & Camardella, L. T. (2014). Stability of class II subdivision malocclusion treatment with 3 and 4 premolarextractions. *Progress in orthodontics*, 15(1), 67.
- Zachrisson BU. Important aspects of long-term stability. *J Clin Orthod*31(9):562-583, 1997.
- Melrose C, Millett DT. Toward a perspective on orthodontic retention? *Am J Orthod Dentofacial Orthop*. 1998 May;113(5):507-14.
- Little RM. Stability and relapse of dental arch alignment. *Br J Orthod*17(3):235-241, 1990.
- Bishara SE. Third molars: a dilemma! Or is it? *Am J Orthod DentofacialOrthop* 115(6):628-633, 1999.

### Comprehensive Treatment in Adolescents and Preadolescent:

- Marshall SD, Southard KA, Southard TE. Early Transverse Treatment. *Semin Orthod* 11(3):130-139, 2005.
- Pinto, A. S., Buschang, P. H., Throckmorton, G. S., & Chen, P. (2001). Morphological and positional asymmetries of young children with functional unilateral posterior crossbite. *American Journal of Orthodontics and Dentofacial Orthopedics*, 120(5), 513-520.
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- Tulloch JFC, Proffit WR, Phillips C: Outcomes in a 2-phase randomized clinical trial of early class II treatment. *American Journal of Orthodontics and Dentofacial Orthopedics* 125(6):657- 667, June 2004.
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- Ferro, F., Funicello, G., Perillo, L., & Chiodini, P. (2011). Mandibular lipbumper treatment and second molar eruption disturbances. *American Journal of Orthodontics and Dentofacial Orthopedics*, 139(5), 622-627.

### Adult Orthodontics:

- Sabri R. Orthodontic objectives in orthognathic surgery: state of theart today. *World J Orthod* 7(2):177-191, 2006.
- Bailey LJ, Cevidanes LH, Proffit WR. Stability and predictability of orthognathic surgery. *Am J Orthod Dentofacial Orthop* 126(3):273-277, 2004.
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- Kokich VG, Spear FM. Guidelines for managing the orthodontic- restorative patients. *Semin Orthod* 3(1):3-20, 1997.
- Mathews DP, Kokich VG. Managing treatment for the orthodontic patient with periodontal problems. *Semin Orthod* 3(1):21-38, 1997.

### Clinical Orthodontics:

- Theodosia Bartzela, Jens C. Türp, Edith Motschall, and Jaap C. Maltha. Medication effects on the rate of orthodontic tooth movement: A systematic literature review. *Am J Orthod Dentofacial Orthop* 2009;135:16-26.
- Kolokitha OE, Chatzistavrou E. Allergic reactions to nickel-containing orthodontic appliances: clinical signs and treatment alternatives. *World J Orthod*. 2008 Winter;9(4):399-406.
- Kindelan SA, Day PF, Kindelan JD, Spencer JR, Duggal MS. Dental trauma: an overview of its influence on the management of orthodontic treatment. Part 1. *J Orthod*. 2008 Jun;35(2):68-78.
- Anthony J Diangelis, Jens O Andreasen, Kurt A Ebeleseder: International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 1. Fractures and luxations of permanent teeth. *Dental Traumatology* 28(1):2-12. Feb 2012

- Monty Singh Duggal, Jay Kindelan, Hani Nazzal. Upper incisor trauma and the orthodontic patient—Principles of management. *Semin Orthod* 2015; 21:59–7
- Patel A, Burden DJ, Sandler J. Medical disorders and orthodontics. *J Orthod*. 2009 Dec;36 Suppl:1-21. Review
- Fleming PS, Strydom H, Katsaros C, MacDonald L, Curatolo M, Fudalej P, Pandis N. Non-pharmacological interventions for alleviating pain during orthodontic treatment. *Cochrane Database Syst Rev*. 2016 Dec 23;12(12).
- Kerosuo, H., Kullaa, A., Kerosuo, E., Kanerva, L., & Hensten-Pettersen,(1996). Nickel allergy in adolescents in relation to orthodontic treatment and piercing of ears. *American journal of orthodontics and dentofacial orthopedics*, 109(2), 148-154.

#### **Dentofacial Deformity:**

- Thornton J, Nimer S, Howard P. The incidence, classification, etiology, and embryology of oral clefts. *Semin Orthod* 2(3):162-168, 1996.
- Evans CA. Orthodontic treatment for patients with clefts. *Clin Plast Surg* 31(2):271-290, 2004.
- Katherine W. L. Vig and Ana M. Mercado. Overview of orthodontic care for children with cleft lip and palate, 1915-2015, *Am J Orthod Dentofacial Orthop* 2015;148:543-56).
- Bergland, O., Semb, G., & Abyholm, F. E. (1986). Elimination of the residual alveolar cleft by secondary bone grafting and subsequent orthodontic treatment. *The Cleft palate journal*, 23(3), 175-205.

#### **Biomechanics and Contemporary Orthodontic Appliance:**

- Isaacson RJ, Lindauer SJ, Davidovitch M. The ground rules for arch wire design. *Semin Orthod* 1(1):3-11, 1995.
- Charles J. Burstone. Biomechanics of deep overbite correction. *Semin Orthod* 7(1):26-33, 2001.
- Edsard van Steenberg, and Ravindra Nanda, Biomechanics of Orthodontic correction of dental asymmetries, *Am J Orthod Dentofacial Orthop*, 1995;107:618- 24
- Park HS, Jeong SH, Kwon OW. Factors affecting the clinical success of screw implants used as orthodontic anchorage. *Am J Orthod Dentofacial Orthop*. 2006 Jul;130(1):18-25.
- Yan Chen, Hee Moon Kyung, Wen Ting Zhao, and Won Jae Yu, Critical factors for the success of orthodontic mini-implants: A systematic review. *Am J Orthod Dentofacial Orthop* 2009;135:284-91

#### **Professionalism and Ethics:**

Professionalism and Ethics, Handbook for Residents, Practical guide, Prof. James Ware, Dr. Abdulaziz Fahad Alkaabba, Dr. Ghaiath MA Hussein, Prof. Omar Hasan Kasule, SCFHS, Latest Edition.

#### **Note:**

This list is intended for use as a study aid only. SCFHS does not intend the list to imply endorsement of these specific references, nor are the exam questions necessarily taken solely from these sources.

**Blueprint Outlines:**

| No.          | Sections                                                 | Percentage  |
|--------------|----------------------------------------------------------|-------------|
| 1            | Growth and Development                                   | 7%          |
| 2            | Orthodontic Diagnosis and Treatment Planning             | 10%         |
| 3            | Growth Modification                                      | 10%         |
| 4            | Treatment Modalities                                     | 17%         |
| 5            | Retention and Stability                                  | 7%          |
| 6            | Comprehensive Treatment in Adolescents and Preadolescent | 12%         |
| 7            | Adult Orthodontics                                       | 10%         |
| 8            | Clinical Orthodontics                                    | 10%         |
| 9            | Dentofacial Deformity                                    | 5%          |
| 10           | Biomechanics and Contemporary Orthodontic Appliance      | 12%         |
| <b>Total</b> |                                                          | <b>100%</b> |

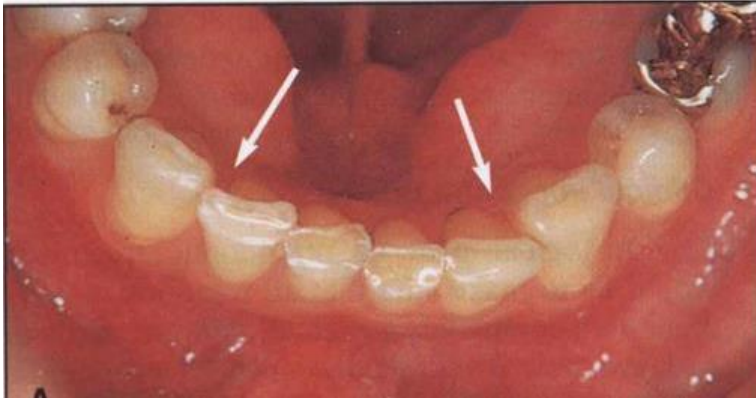
**Note:**

- Blueprint distributions of the examination may differ up to +/-5% in each category.
- Percentages and content are subject to change at any time. See the SCFHS website for the most up-to-date information.
- Research, Ethics, Professionalism and Patient Safety are incorporated within the various domains

### Example Questions

#### EXAMPLE OF K2 QUESTIONS

##### Question 1



A Case presented in the Dental Clinic post orthodontic treatment complaining from relapse in anterior incisors region (see image).

Which of the following is the most common contributing factor?

- A. Mandibular plane angle increases during treatment
- B. Over expanded inter canine width during treatment
- C. Increase in lower facial height (LAFH) during treatment
- D. No correlation between any variables studied and mandibular irregularity

#### EXAMPLE OF K1

##### Question 2

The steroid in obstructive sleep apnea has a roles.

Which of the following is the role of the steroid in obstructive sleep apnea treatment?

- A. It has no significant role
- B. It has high significant role
- C. Less than surgical approach
- D. Equal role to ventilator mask