Contents

1. Introduction **1**
Incisors *2*
Canines *2*
Premolars *2*
Molars *2*
Functions of Teeth *3*
Dental Formula *3*
Fédération Dentaire Internationale (FDI) Approved System *4*
Morphology of Teeth *4*
Surfaces of Tooth *4*
Glossary *4*

2. The Deciduous (Primary) Teeth **10**
Importance of Deciduous Teeth *10*
The Deciduous Incisors *11*
The Deciduous Canine *14*
The Deciduous Molars *16*

3. The Permanent Teeth **24**
The Permanent Incisors *24*
The Permanent Canines *29*
The Premolars *32*
The Permanent Molars *39*

4. Method of Tooth Carving **52**
Equipment *52*
Carving of Permanent Maxillary Central Incisor *52*
Carving of Permanent Maxillary Canine *52*
Carving of Maxillary Premolar *54*
Carving of Maxillary First Molar *55*

5. Vasculature and Innervations of the Teeth and Associated Structures **56**
Arterial Supply of the Teeth and Associated Structures *56*
Venous Drainage of Orodental Tissues *58*
Innervation of Orodental Tissues *58*

6. The Temporomandibular Joint and Muscles of Mastication **61**
Anatomy in Brief *61*
Articular Fibrous Covering *64*
Articular Disk *65*
Articular Capsule *65*
Clinical Considerations *65*
Muscles of Mastication *66*

7. The Maxillary Sinus **69**
Enumeration *69*
Functions *69*
Maxillary Sinus *69*
Applied Anatomy *72*

8. Occlusion **73**
Definition *73*
Few Terminologies *73*
Development of Occlusion *75*

9. Histological Techniques for Study of Oral Tissues **82**
Microscopy *82*
Few Analytical Methods *85*
Routine Laboratory Techniques for Histologic Study *85*

10. Development of Face and Oral Cavity **90**
Zygote *90*
Morula *90*
Blastocyst *90*
Placenta *91*
Bilaminar Germ Disk *91*
Amniotic Cavity *91*
Yolk Sac *91*
Prochordal Plate *91*
Primitive Streak *91*
Mesoderm *92*
Notochord *92*
Derivatives of Three Germ Layers *92*
Subdivisions of Mesoderm *93*
Folding of Embryo *94*
Early Orofacial Development *95*
Branchial Arches *96*
The Branchial Grooves and Pharyngeal Pouches *97*
Formation of the Tongue *99*
Development of Palate *101*
Development of the Jaws *101*

Development of Maxilla *105*
Development of the Temporomandibular Joint *105*
Development of the Skull *105*
Development of Salivary Gland *107*
Clinical Considerations *108*

11. Development of Tooth 110
Primary Epithelial Band *110*
Different Stages of Tooth Development *112*
Histodifferentiation of Tooth Germ Prior to Enamel and Dentin Formation *119*

12. Eruption and Shedding of Tooth 133
Eruption *133*
Histology of Tooth Movement *135*
Mechanism of Eruption of Tooth *137*
Shedding of the Deciduous Teeth *139*
Clinical Considerations *141*

13. Enamel 143
Physical Characteristics *143*
Chemical Composition *143*
Structure of Enamel *144*
Age Changes of Enamel *155*
Clinical Considerations *155*

14. Dentin 157
Physical Characteristics *157*
Chemical Composition *157*
Structure of Dentin *157*
Peritubular (Intratubular) Dentin *159*
Intertubular Dentin *159*
Predentin *160*
Odontoblast Process *160*
Different Forms of Dentin *160*
Theories of Pain Transmission through Dentin *163*
Age and Functional Changes *164*
Clinical Considerations *166*

15. Pulp 168
Functions *168*
Anatomy *168*
Development *169*
Structural Features *170*
Clinical Considerations *175*

16. Cementum 177
Physical Characteristics *177*
Chemical Composition *177*
Function *177*
Structure *178*
Scanning Electron Microscopy *181*
Classification of Cementum based on the Nature and Origin of the Organic Matrix *182*
Cementodentinal Junction *183*
Cementoenamel Junction *183*
Clinical Considerations *184*

17. Periodontium 186
Periodontal Ligament *186*
Fibers of the Periodontal Ligament *187*
Ground Substance of the Periodontal Ligament *191*
Cells of the Periodontal Ligament *191*
Blood Vessels and Nerves of the Periodontal Ligament *194*
Clinical Considerations *194*

18. Alveolar Bone 197
Function *197*
Structure of Bone *197*
Types of Bone Tissues *199*
Physiologic Changes in Alveolar Process *204*
Internal Reconstruction of Bone *204*
Clinical Considerations *206*

19. Oral Mucous Membrane 207
Functions of the Oral Mucosa *207*
Organization of the Oral Mucosa *208*
Classification of Oral Mucosa (According to Function) *208*
Clinical Appearance *208*
Component Tissues of Oral Mucosa *209*
Structure of Mucosa in Different Regions of the Oral Cavity *216*
Age Changes *225*
Clinical Considerations *226*

20. Salivary Glands 227
Definition of Gland *227*
Classification of Glands *227*
Classification of Salivary Glands *227*
Structural Pattern of the Salivary Gland *228*
Ductal System *233*
Saliva *235*
Clinical Considerations *238*

Index* *239