TEST BANK

Modern Dental Assisting

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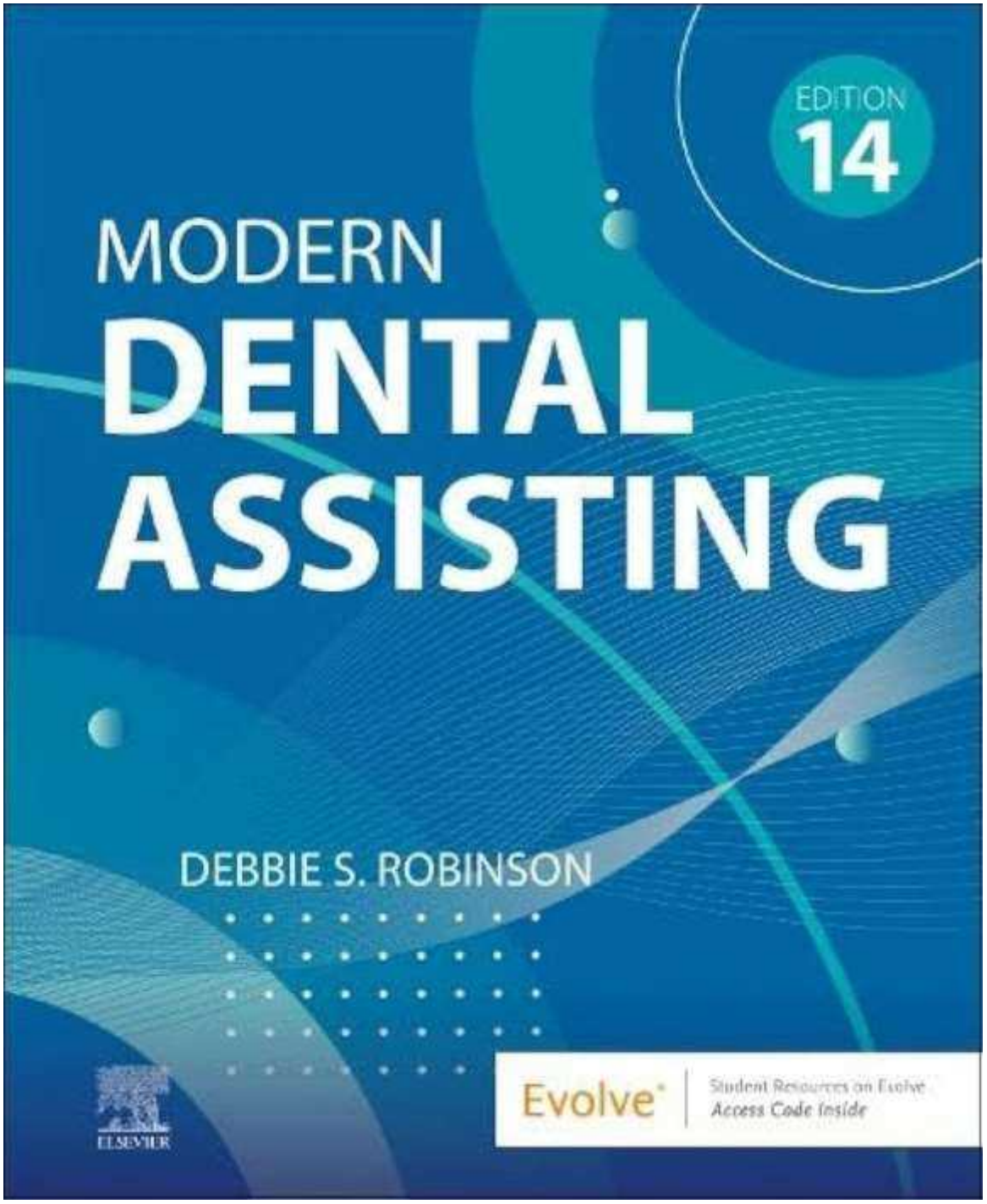
14th Edition



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Chapter 1. Oral Embryology and Histology

1. Which of the following is the process by which the cells of the fertilized egg divide and form a ball of cells during embryonic development?
   A. Cleavage
   B. Differentiation
   C. Organogenesis
   D. Implantation
   Answer: A. Cleavage
   Rationale: Cleavage is the series of rapid mitotic divisions that occur after fertilization, leading to the formation of a ball of cells known as the morula.
   DIF: Easy
   TOP: Embryonic development
   MSC: Multiple Choice
2. During the first week of embryonic development, the fertilized egg becomes a structure called a:
   A. Zygote
   B. Blastocyst
   C. Morula
   D. Embryo
   Answer: B. Blastocyst
   Rationale: After fertilization and cleavage, the ball of cells (morula) forms into a blastocyst, which implants into the uterine wall.
   DIF: Easy
   TOP: Embryonic development
   MSC: Multiple Choice
3. The oral cavity begins to develop during which of the following stages of embryonic development?
   A. Zygote
   B. Fetal
   C. Pre-implantation
   D. Embryonic
   Answer: D. Embryonic
   Rationale: The development of the oral cavity starts during the embryonic stage, around the third week of pregnancy, as the facial structures begin to form.
   DIF: Moderate
   TOP: Oral cavity development
   MSC: Multiple Choice
4. The process by which the neural tube forms and begins to develop into the brain and spinal cord is known as:
   A. Gastrulation
   B. Neurulation
   C. Cleavage
   D. Organogenesis

Answer: B. Neurulation
Rationale: Neurulation is the process where the neural tube forms, which later gives rise to the central nervous system (brain and spinal cord).
DIF: Moderate
TOP: Neural development
MSC: Multiple Choice

5. Which of the following is the primary function of the mesoderm layer in embryonic development?
A. Formation of the nervous system
B. Development of the skin and hair
C. Formation of muscles, bones, and circulatory systems
D. Formation of the digestive system
Answer: C. Formation of muscles, bones, and circulatory systems
Rationale: The mesoderm layer gives rise to structures such as muscles, bones, and the circulatory system during embryonic development.
DIF: Moderate
TOP: Germ layers
MSC: Multiple Choice

6. The term "histology" refers to the study of:
A. The structure and function of tissues
B. The development of organs
C. The structure of cells
D. The development of embryos
Answer: A. The structure and function of tissues
Rationale: Histology is the study of tissues, including their structure and function, and their role in the body.
DIF: Easy
TOP: Histology
MSC: Multiple Choice

7. The enamel of the tooth is derived from which embryonic tissue?
A. Ectoderm
B. Mesoderm
C. Endoderm
D. Neural crest
Answer: A. Ectoderm
Rationale: Enamel, the hard outer surface of the tooth, develops from the ectodermal layer of the embryo.
DIF: Moderate
TOP: Tooth development
MSC: Multiple Choice

8. The development of the face and oral cavity during embryonic development involves fusion of which structures?
A. Palatal shelves
B. Maxillary and mandibular processes
C. Frontal nasal process
D. Both B and C

Answer: D. Both B and C
Rationale: The development of the face and oral cavity involves the fusion of the maxillary and mandibular processes, as well as the frontal nasal process.
DIF: Moderate
TOP: Facial development
MSC: Multiple Choice

9. Which structure is responsible for the formation of the teeth during embryonic development?
A. Neural crest
B. Ectoderm
C. Mesoderm
D. Endoderm
Answer: A. Neural crest
Rationale: The neural crest cells play a crucial role in the formation of the teeth during embryonic development.
DIF: Moderate
TOP: Tooth formation
MSC: Multiple Choice

10. The first indication of tooth development occurs during which week of embryonic development?
A. 2nd week
B. 5th week
C. 6th week
D. 7th week
Answer: C. 6th week
Rationale: The first indication of tooth development appears during the 6th week of embryonic development, when the dental lamina forms.
DIF: Moderate
TOP: Tooth development
MSC: Multiple Choice

11. The process of ossification refers to:
A. The formation of blood cells
B. The formation of bone
C. The development of the skin
D. The development of the digestive system
Answer: B. The formation of bone
Rationale: Ossification is the process by which bone tissue is formed from cartilage or other connective tissue.
DIF: Moderate
TOP: Bone development
MSC: Multiple Choice

12. Which of the following is a key feature of the histological structure of enamel?
A. It is composed of collagen fibers
B. It is avascular and has no living cells
C. It contains many blood vessels
D. It has a high content of water

Answer: B. It is avascular and has no living cells
Rationale: Enamel is a non-living tissue that does not contain blood vessels or living cells, which contributes to its hardness.
DIF: Moderate
TOP: Enamel structure
MSC: Multiple Choice

13. The dental pulp is primarily derived from which embryonic tissue?
A. Ectoderm
B. Mesoderm
C. Endoderm
D. Neural crest
Answer: D. Neural crest
Rationale: The dental pulp, which contains nerves and blood vessels, is derived from the neural crest during tooth development.
DIF: Moderate
TOP: Pulp development
MSC: Multiple Choice

14. The process by which a structure in the developing embryo transforms into a more specialized form is called:
A. Differentiation
B. Cleavage
C. Implantation
D. Gastrulation
Answer: A. Differentiation
Rationale: Differentiation is the process by which cells become more specialized and take on distinct functions.
DIF: Moderate
TOP: Cell development
MSC: Multiple Choice

15. Which of the following tissues is considered the hardest in the body?
A. Dentin
B. Enamel
C. Bone
D. Cementum
Answer: B. Enamel
Rationale: Enamel is the hardest tissue in the human body, protecting the teeth from decay and wear.
DIF: Easy
TOP: Tooth structure
MSC: Multiple Choice

16. The process by which the embryo develops three distinct layers—ectoderm, mesoderm, and endoderm—is known as:
A. Neurulation
B. Organogenesis
C. Gastrulation
D. Cleavage

Answer: C. Gastrulation
Rationale: Gastrulation is the process where the three primary germ layers—ectoderm, mesoderm, and endoderm—are formed, setting the stage for further development.
DIF: Moderate
TOP: Embryonic development
MSC: Multiple Choice

17. The developmental origin of the palate is from:
A. Ectoderm
B. Mesoderm
C. Neural crest cells
D. Endoderm
Answer: C. Neural crest cells
Rationale: The palate develops from the neural crest cells, which contribute to the formation of the facial structures, including the palate.
DIF: Moderate
TOP: Palate development
MSC: Multiple Choice

18. The development of the tooth germ begins at which stage of development?
A. Pre-bud stage
B. Cap stage
C. Bell stage
D. Bud stage
Answer: D. Bud stage
Rationale: Tooth development begins at the bud stage when the dental lamina forms the initial "bud" of the developing tooth.
DIF: Moderate
TOP: Tooth germ development
MSC: Multiple Choice

19. Which of the following tissues is responsible for the formation of the cementum of the tooth?
A. Enamel organ
B. Dental papilla
C. Dental follicle
D. Neural crest
Answer: C. Dental follicle
Rationale: The dental follicle is responsible for the formation of the cementum, periodontal ligament, and alveolar bone around the tooth.
DIF: Moderate
TOP: Tooth structure
MSC: Multiple Choice

20. The development of the temporomandibular joint (TMJ) occurs during which phase of embryonic development?
A. First trimester
B. Second trimester
C. Third trimester
D. Postnatal

Answer: A. First trimester
Rationale: The TMJ begins developing early in the first trimester, around the 8th to 9th week of embryonic development.
DIF: Moderate
TOP: TMJ development
MSC: Multiple Choice

21. The process of tooth eruption is controlled by the interaction between the tooth germ and the:
A. Oral epithelium
B. Dental lamina
C. Periodontal ligament
D. Alveolar bone
Answer: C. Periodontal ligament
Rationale: The eruption of the tooth is regulated by the interaction between the tooth germ and the periodontal ligament, which anchors the tooth into the bone.
DIF: Moderate
TOP: Tooth eruption
MSC: Multiple Choice
22. Which layer of the enamel organ gives rise to the ameloblasts, which form enamel?
A. Outer enamel epithelium
B. Inner enamel epithelium
C. Stellate reticulum
D. Stratum intermedium
Answer: B. Inner enamel epithelium
Rationale: The inner enamel epithelium gives rise to ameloblasts, which are responsible for the formation of enamel during tooth development.
DIF: Moderate
TOP: Tooth development
MSC: Multiple Choice
23. The development of the secondary dentition begins during which stage of embryonic development?
A. Embryonic
B. Fetal
C. Postnatal
D. Pre-birth
Answer: B. Fetal
Rationale: The development of the secondary (permanent) dentition begins during the fetal stage, although the teeth do not erupt until after birth.
DIF: Moderate
TOP: Tooth development
MSC: Multiple Choice
24. The dental papilla is responsible for forming which of the following structures?
A. Enamel

B. Dentin
C. Cementum
D. Periodontal ligament
Answer: B. Dentin
Rationale: The dental papilla forms dentin, the tissue located beneath the enamel of the tooth.
DIF: Moderate
TOP: Tooth development
MSC: Multiple Choice

25. The hard tissue that forms the bulk of the tooth is:
A. Dentin
B. Enamel
C. Cementum
D. Pulp
Answer: A. Dentin
Rationale: Dentin is the calcified tissue that forms the bulk of the tooth beneath the enamel.
DIF: Easy
TOP: Tooth structure
MSC: Multiple Choice

26. The first stage of odontogenesis, or tooth development, is called the:
A. Bud stage
B. Cap stage
C. Bell stage
D. Initiation stage
Answer: A. Bud stage
Rationale: The bud stage is the first stage of odontogenesis, during which the dental lamina forms the initial bud-like structure of the developing tooth.
DIF: Moderate
TOP: Tooth development
MSC: Multiple Choice

27. Which structure develops into the root of the tooth?
A. Dental lamina
B. Dental papilla
C. Hertwig's epithelial root sheath
D. Outer enamel epithelium
Answer: C. Hertwig's epithelial root sheath
Rationale: Hertwig's epithelial root sheath is responsible for the development of the root structure by guiding the formation of the root dentin and cementum.
DIF: Moderate
TOP: Tooth root development
MSC: Multiple Choice

28. The function of the periodontal ligament is to:
A. Form dentin
B. Protect the tooth from infection
C. Anchor the tooth to the alveolar bone

D. Secrete enamel
Answer: C. Anchor the tooth to the alveolar bone
Rationale: The periodontal ligament anchors the tooth to the surrounding alveolar bone and provides support during tooth eruption.
DIF: Easy
TOP: Tooth structure
MSC: Multiple Choice

29. Which of the following structures is responsible for the formation of the alveolar bone?
A. Dental follicle
B. Neural crest cells
C. Enamel organ
D. Dental papilla
Answer: A. Dental follicle
Rationale: The dental follicle is responsible for the formation of the alveolar bone and the supporting structures around the tooth.
DIF: Moderate
TOP: Bone development
MSC: Multiple Choice

30. The term "amelogenesis" refers to the process of:
A. Formation of dentin
B. Formation of cementum
C. Formation of enamel
D. Formation of the pulp
Answer: C. Formation of enamel
Rationale: Amelogenesis is the process by which enamel is formed during tooth development.
DIF: Easy
TOP: Tooth development
MSC: Multiple Choice

31. Which of the following tissues contains the only living cells in the tooth?
A. Enamel
B. Dentin
C. Cementum
D. Pulp
Answer: D. Pulp
Rationale: The dental pulp is the only part of the tooth that contains living cells, including nerves and blood vessels.
DIF: Moderate
TOP: Tooth structure
MSC: Multiple Choice

32. The eruption of the primary dentition typically begins around which age?
A. 6 months
B. 2 years
C. 4 years
D. 6 years
Answer: A. 6 months

Rationale: The eruption of the primary (baby) teeth typically begins at around 6 months of age.
DIF: Easy
TOP: Tooth eruption
MSC: Multiple Choice

33. The process of dental pulp becoming more fibrous as a person ages is called:
A. Pulpal sclerosis
B. Amelogenesis
C. Cementogenesis
D. Dentinogenesis
Answer: A. Pulpal sclerosis
Rationale: Pulpal sclerosis refers to the hardening or fibrous changes in the pulp tissue as a person ages.
DIF: Moderate
TOP: Pulp aging
MSC: Multiple Choice

34. The process in which the cells of the inner enamel epithelium secrete enamel is called:
A. Amelogenesis
B. Dentinogenesis
C. Cementogenesis
D. Enamelogenesis
Answer: A. Amelogenesis
Rationale: Amelogenesis is the process by which ameloblasts, derived from the inner enamel epithelium, secrete enamel.
DIF: Moderate
TOP: Tooth development
MSC: Multiple Choice

35. Which of the following is a feature of the enamel organ?
A. It is derived from the mesoderm.
B. It gives rise to the pulp.
C. It is responsible for enamel formation.
D. It forms the root of the tooth.
Answer: C. It is responsible for enamel formation.
Rationale: The enamel organ is responsible for the formation of enamel during tooth development.
DIF: Moderate
TOP: Tooth development
MSC: Multiple Choice

36. The dental lamina is responsible for the formation of:
A. The enamel
B. The pulp
C. The tooth buds
D. The cementum
Answer: C. The tooth buds
Rationale: The dental lamina gives rise to the tooth buds, which later develop into the various parts of the tooth.

DIF: Moderate
TOP: Tooth development
MSC: Multiple Choice

37. The development of the tongue occurs primarily from which branchial arch?
A. First
B. Second
C. Third
D. Fourth
Answer: A. First
Rationale: The development of the tongue mainly comes from the first branchial arch, although contributions from the second, third, and fourth arches also play a role.
DIF: Moderate
TOP: Tongue development
MSC: Multiple Choice

38. The formation of the palate occurs through the fusion of which structures?
A. Maxillary and mandibular processes
B. Palatal shelves
C. Frontal nasal and maxillary processes
D. Mandibular processes
Answer: B. Palatal shelves
Rationale: The palate is formed through the fusion of the palatal shelves, which extend from the maxillary processes.
DIF: Moderate
TOP: Palate development
MSC: Multiple Choice

39. Which of the following tissues is the most mineralized in the body?
A. Bone
B. Dentin
C. Enamel
D. Cementum
Answer: C. Enamel
Rationale: Enamel is the most mineralized tissue in the human body, making it extremely hard and resistant to wear.
DIF: Easy
TOP: Tooth structure
MSC: Multiple Choice

40. The mesoderm is responsible for the development of all of the following EXCEPT:
A. Muscles
B. Bones
C. Hair
D. Circulatory system
Answer: C. Hair
Rationale: Hair develops from the ectoderm, not the mesoderm. The mesoderm is responsible for developing muscles, bones, and the circulatory system.
DIF: Moderate