DENT 51 - Applied Dental Science I

Scope and objectives as required by American Dental Association and CA Code of Regulations

A. Course and professional requirements
B. Anatomy and physiology
    1. General anatomical terms related to dental anatomy and the oral cavity
    2. Functions of enamel, dentin, pulp cementum and periodontal ligaments
    3. Skeletal system
    4. Histology of bone in terms of cartilage, compact bone, spongy bone, and the periosteum
    5. Bones and major anatomic landmarks of the skull
    6. Action of the temporomandibular joint
    7. Major muscles of mastication, facial expression, the floor of the mouth, and extrinsic muscles of the tongue including their origin and insertion
    8. Theory of how muscles contract
    9. Major sources of innervation of the teeth and the oral cavity
    10. Branches of the trigeminal nerve and relate the importance to dentistry
    11. Four pairs of paranasal sinuses
    12. Salivary glands and their ducts
    13. Function of the oral cavity in digestion
C. Sterilization/disinfection/infection control, hazard communication & infectious diseases
    1. Legal implications and standard of care to establish and maintain a safe working environment
    2. Problems, needs, and uses of barrier protective eyewear and clothing
    3. Hand and rotary instruments pre/post sterilization (autoclaving, dry heat, chemicals)
    4. Care of self-contained water units and distiller
    5. Sterilization by ethylene oxide
    6. Ultrasonic use and verification
    7. Types of post sterility maintenance
    8. Various monitoring systems for sterilization
    9. Hand and instrument scrubbing techniques
    10. Advantages and disadvantages of the various agents for disinfecting purposes
    11. Potential means of disease transmission in the dental office
    12. Advantages and disadvantages of chemical disinfecting agents and factors affecting germicidal activity
    13. Protection for the lab and front office personnel and areas
    14. Various family members of herpes virus, tuberculosis, hepatitis and AIDS, and the risk factors for health care workers
    15. Reasons of why viruses are difficult to isolate and control
    16. Four major mechanisms of transmitting disease in the dental office
    17. Three ways infectious disease can be transmitted
    18. How microorganisms cause disease
    19. Various types of immunity
    20. Various infectious diseases important to dentistry and compare current statistics/prevention
    21. OSHA hazard communication program and MSDA requirements
    22. Role of the EPA and the CDC in dentistry
    23. Development of office records for staff safety, hazardous chemicals/waste, staff health/injury records, exposure control plans, standard/universal precautions, categories of employees, postexposure management & employee training
D. Tooth morphology

1. Four types of teeth and describe their designs, functions, and landmarks of each type
2. Dental arches
3. Universal numbering system in charting and recording exercises
4. Surfaces and borders of the anterior and posterior teeth
5. Anatomical features of the teeth and the reasons for maintaining or restoring these features
6. Function of occlusion
7. Letters and types of teeth in the primary dentition and state the specialized functions of the primary dentition
8. Primary and permanent dentition in terms of numbers and types of teeth; size, roots and shape of analogues teeth: and other features such as enamel, thickness, and size of the pulp chamber and other anatomic landmarks
9. Given drawings/models, similarities and differences of permanent teeth

E. Charting
1. Cavity classifications and occlusal classification
2. Symbols and notations used for recording dental conditions
3. Dental conditions and treatment procedures on dental charts
4. Major anatomic landmarks of the oral cavity
5. Function of the oral tissue as it relates to dentistry

F. Vital signs
1. Required armamentarium for blood pressure
2. Differences between normal and abnormal vital signs
3. Operation of the oxygen tank
4. Performing and recording of pulse, respiration, and blood pressure accurately
5. Importance of establishing pediatric weight and temperature

G. Preliminary oral examination
1. Rationale of the oral inspection
2. Oral inspection procedure
3. Instruments used to perform a preliminary oral examination
4. While using the correct visual and tactile examination methods, i.e., the correct fulcrum and mirror control, collect and record oral and intraoral inspections with maximum patient comfort
5. Correctly analyze all findings and determine if the structures examined are normal or abnormal
6. Rational for the examination of the oral cavity as well as the face and neck
7. Physical or medical conditions that may modify the examination
8. Rationale and use of the extra-intraoral cameras and photography
9. Difference between cavity detectors
10. Indications and contraindication and cavity detectors
11. Assemble and disassemble the cavity detectors
12. Calibration of probe and the variety of tones
13. Disinfection, sterilization, polishing and cleaning of the probe

H. Oral embryology and histology
1. Tissue differentiation
2. Embryonic development of the palate including the formation of the primary and secondary palate
3. Genetic factors that most commonly affect dental development
4. Postnatal growth of the maxilla and the mandible in terms of the deposition and absorption of bone
5. Five stages of development in the growth period of the life cycle of a tooth
6. Periods of calcification and eruption during the life cycle of a tooth

7. Possible disorders that may occur in the enamel, dentin, pulp, cementum, and periodontal ligament
8. Structures which form the attachment apparatus and gingival unit of the periodontium
9. Characteristics of normal gingival tissue