CBDT® Content Outline

The Body of Knowledge Study identified 6 major topic areas:

    I.   Bone Concepts
    II.   Radiation Safety and Science
    III.   Technology and Equipment
    IV.   Scan Acquisition
    V.   Scan Analysis

1. Bone Concepts

A. Key Terms
1. Osteoporosis and Low Bone Mass
2. Bone Mineral Density (BMD)
3. T-scores and Z-scores
4. Fracture Risk Assessment (FRAX®)

B. Bone Science
1. Anatomy and physiology
2. Bone types (e.g., trabecular, cortical)
3. Remodeling cycle (e.g., formation, resorption)
4. Fractures (e.g., atypical)

C. Osteoporosis
1. Primary osteoporosis (e.g., Type 1, Type 2)
2. Secondary osteoporosis
3. Risk factors
4. Prevention
5. Treatments (e.g., antiresorptive, anabolic)
6. Bone Mass Measurement Act (i.e., reimbursement and coverage)

2. **Radiation Safety and Science**

   A. X-Ray Science
   1. Ionizing radiation factors (e.g., time, mA, kVp)
   2. Dual energy X-Ray Absorptiometry (DXA)

   B. Basic Methods of Protection and Radiation Safety
   1. ALARA
   2. Who to protect (e.g., patient, technologist, pregnant women)
   3. Protection methods (e.g., time, distance, shielding)
   4. Radiation dose (e.g., units, comparison)

3. **Technology and Equipment**

   A. BMD Measurement
   1. Testing devices (e.g., advantages/disadvantages of DXA, QCT, and QUS)
   2. Types of scanners (e.g., dual energy/fan beam, CT, ultrasound)

   B. DXA Standard Practices
   1. Calibration
   2. Quality assurance (QA) (e.g., accuracy, precision)
   3. Quality control (QC) (e.g., spine phantom, shifts, drifts)
   4. Precision assessment (e.g., calculating LSC)
   5. Cross-calibration
   6. Data management (e.g., backup, archive)

4. **DXA Scan Acquisition**

   A. Scan Selection
   1. Central vs. Peripheral
   2. Scan site substitution
   3. Patient health information
   4. Scan mode selection (e.g., body habitus)

   B. Positioning
   1. Spine
   2. Femur/hip
   3. Forearm/distal radius

   C. Artifacts
   1. Anatomical
   2. Internal and external
   3. Motion
   4. Contrast agents

   D. Serial Scanning
   1. Reproducibility
   2. Previous scan settings, parameters, and positioning
   3. Least Significant Change (LSC)

   E. Other Measurements
   1. Total Body/composition scan
   2. Vertebral Fracture Assessment (VFA)
   3. Atypical Femur Fracture (AFF) scans
   4. Trabecular bone scores (TBS)

5. Scan Analysis
- A. Analysis Procedures
    1. Specific sites (e.g., spine, hip, forearm)
    2. Baseline vs. serial
    3. Regions of interest (ROI)
    4. Bone mapping/edge detection
    5. Errors and automatic adjustments
    6. Scan validity (e.g., erroneous BMD elevations, excluding vertebrae)
- B. Guidelines and Reporting
    1. ISCD Official Positions
    2. WHO Diagnostic Criteria
    3. NHANESIII Database
    4. National Osteoporosis Foundation (NOF)

Specifications

The CBDT® examination has a total of 150 multiple choice questions (closed book). Candidates will have **three and a half** hours to complete the examination.

Number of Questions by Content Area and Percentage of Exam

Content Outline	Total	%
I. Bone Concepts	31	25
II. Radiation Safety and Science	14	11
III. Technology and Equipment	17	14
IV. Scan Acquisition	39	31
V. Scan Analysis	24	19
	125	100%

- Each correctly answered question is one point.
- Points are not deducted for incorrect answers.
- Answer all questions, even if you are not sure of the answer.
- All questions on the examination are based on the (CBDT®) content Outline   and documented to a text included in the CBDT® Body of Knowledge.
- CEs are not awarded for taking the exam.