



## **SURGICAL TECHNOLOGIST CERTIFYING EXAMINATION CONTENT OUTLINE**

The CST examination content is based on tasks performed by CSTs nationwide. A job analysis survey was conducted to identify specific tasks related to the frequency and importance of Surgical Technologists nationwide. The results of the job analysis are used to develop the content outline for the examination, which is evaluated on a prescribed schedule to ensure that the overall examination content reflects current surgical technology practices.

The CST examination consists of 175 questions, 150 of which are scored. The 25 pretest items (unscored) are randomly distributed throughout the examination for the purpose of analysis and statistical evaluation. The passing score is the minimum number of questions that must be answered correctly. Candidates should refer to [nbtsa.org](http://nbtsa.org) for the number of questions which must be answered correctly in order to obtain a passing score. Score reports are provided to all candidates who take the examination.

### **I. PERIOPERATIVE CARE (97 items)**

#### **A. Preoperative Preparation (19 items)**

1. Perform basic hand wash.
2. Review surgeon's preference card.
3. Verify availability of surgery equipment (e.g., reserve equipment for surgery).
4. Utilize preoperative documentation (e.g., informed consent, advanced directives, allergies, laboratory results).
5. Consider patient needs (e.g., bariatrics, geriatrics, pediatrics, immunocompromised, patient allergies).
6. Prepare the operating room environment (e.g., temperature, humidity, lights, suction, wiping down the room and furniture, managing OR traffic patterns).
7. Obtain extra SCD's Case Carts, OB and CS Packs from Central Supply.
8. Coordinate additional equipment (e.g., bovie pad, pneumatic tourniquet, sequential compression devices, thermoregulatory devices, positioning devices).
9. Obtain and inspect instruments and supplies needed for surgery.
10. Don personal protective equipment.
11. Check packages for sterile integrity and expiration indicators.
12. Open sterile supplies/instruments while maintaining aseptic technique.
13. Perform surgical scrub (e.g., initial, waterless).
14. Don gown and gloves.
15. Drape Mayo stand and back table and reinforce with towels.
16. Setup secondary mayo stand to eliminate cross-contamination.
17. Assemble and set up sterile instruments and supplies for surgical procedures.
18. Transfer patient to operating room table.
19. Apply patient safety devices (e.g., bovie pad, safety strap, protective padding, x-ray safety).
20. Apply compression hose and / or sequential compression devices.
21. Participate in positioning the patient.
22. Prepare surgical site (e.g., hair removal, surgical preparation).
23. Gown and glove sterile team members.
24. Participate in draping the patient.
25. Secure cords/tubing to drapes and apply light handles.
26. Drape specialty equipment (e.g., c-arm, robot, microscope).
27. Participate in Universal Protocol (Time Out).

#### **B. Intraoperative Procedures (68 items)**

1. Maintain aseptic technique throughout the procedure (e.g., handling breaks in sterile technique).
2. Follow Standard and Universal Precautions.
3. Anticipate the steps of surgical procedures.
4. Perform counts with circulator at appropriate intervals.
5. Prepare hemostatic agents (e.g., Flow seal, Arista or Surgicel, etc.).
6. Verify, receive, mix, and label all medications and solutions.
7. Provide intraoperative assistance under the direction of the surgeon.
8. Identify different types of operative incisions.
9. Identify instruments by: function, application, and classification.
10. Assemble, test, operate, and disassemble specialty equipment: microscopes, ultrasound technology (e.g., harmonic scalpel, phacoemulsification), endoscopic technology, power equipment, robotic and emerging technology.
11. Assemble and maintain retractors.
12. Perform 2nd scrub role (e.g., hold retractors / scopes during case).
13. Pass instruments and supplies.
14. Identify appropriate usage of sutures/needles and stapling devices.
15. Prepare, pass, and cut suture material as directed.
16. Provide assistance with stapling devices.
17. Differentiate among the various methods and applications of hemostasis (e.g., mechanical, thermal, chemical).

18. Irrigate, suction, and sponge operative site as directed.
19. Monitor medication and solution use.
20. Verify with surgeon the correct type and/or size of specialty specific implantable items.
21. Prepare bone and tissue grafts (e.g., allograft, autograft, synthetic).
22. Verify, prepare, and label specimen(s).
23. Prepare drains, catheters, and tubing for insertion.
24. Observe patient's intraoperative status (e.g., monitor color of blood, blood loss, patient position).
25. Perform appropriate actions during an emergency.
26. Initiate preventative actions in potentially harmful situations.
27. Connect and activate drains to suction apparatus.
28. Prepare dressings and wound site.
29. Assist in the application of casts, splints, braces, and similar devices.

### **C. Postoperative Procedures (10 items)**

1. Remove drapes and other equipment (e.g., suction, cautery, instrumentation, nondisposable items) from patient.
2. Assist in postoperative cleaning of patient (prior to transfer of patient to the recovery bed).
3. Report abnormal postoperative findings (e.g., bleeding at surgical site, hematoma, rash).
4. Report medication and solution amount used.
5. Report quantitative blood loss.
6. Assist with removing any positioning devices.
7. Transfer patient from operating table to stretcher.
8. Dispose of contaminated sharps and/or sharps container after surgery in compliance with Standard Precautions.
9. Dispose of contaminated waste and drapes after surgery in compliance with Standard Precautions.
10. Participate in case debrief.
11. Perform room clean up and restock supplies.
12. Dock suction apparatus for cleaning.
13. Remove all unused supplies and return to their appropriate storage location.
14. Wipe down any surface housekeeping is not allowed to touch with a chemical wipe (e.g., ESU, baby warmer, anesthesia machine, computers, etc.).
15. Clean and wipe consoles as needed.
16. Reset OR once environmental disinfection has taken place. Including: making OR bed with linen, re-applying arms to OR bed, connecting suction and tubing to the wall, laying out all supplies for next case, and position equipment as needed in preparation for next case.
17. Assist with inventory of sterile supplies; verify expiration dates.
18. Restock and organize each OR at end of day to ensure that all required minimum items are in the room and turn off lights.

## **II. ANCILLARY DUTIES (23 items)**

### **A. Administrative and Personnel (7 items)**

1. Revise surgeon's preference card as necessary.
2. Follow proper cost containment processes.
3. Create, maintain, and utilize preference cards for each surgeon.
4. Follow hospital and national disaster plan protocol.
5. Recognize safety and environmental hazards (e.g., fire, chemical spill, laser, smoke).
6. Apply basic principles of electricity and electrical safety.
7. Apply ethical and legal practices related to surgical patient care.
8. Use interpersonal skills (e.g., listening, diplomacy, responsiveness, conflict resolution) and group dynamics.
9. Apply the importance of cultural diversity.
10. Demonstrate knowledge of concepts of death and dying.
11. Serve as preceptor to perioperative staff and/or students.
12. Provide assistance as needed to other OR rooms.
13. Mentor new or traveling perioperative personnel.

### **B. Equipment Sterilization and Maintenance (16 items)**

1. Troubleshoot equipment malfunctions.
2. Decontaminate and clean instruments and equipment.
3. Pre-clean instruments using enzymatic cleaner.
4. Separate all instruments and put them in basin with water.
5. Take dirty instruments and equipment to Central Supply.
6. Inspect, test, and assemble instruments and equipment.
7. Interpret and understand chemical and biological indicators.
8. Restock left over supplies and instruments.

## **III. BASIC SCIENCE (30 items)**

### **A. Anatomy and Physiology (18 items)**

1. Use appropriate medical terminology and abbreviations.
2. Demonstrate knowledge of anatomical systems as they relate to the surgical procedure:
 

a. A&P system	h. neurological
b. cardiovascular	i. ophthalmic
c. gastrointestinal	j. otorhinolaryngology
d. genitourinary	k. peripheral vascular
e. integumentary	l. pulmonary
f. lymphatic	m. reproductive
g. muscular	n. skeletal

3. Demonstrate knowledge of human physiology as they relate to the surgical procedure:
  - a. A&P system
  - b. cardiovascular
  - c. gastrointestinal
  - d. genitourinary
  - e. integumentary
  - f. lymphatic
  - g. muscular
  - h. neurological
  - i. ophthalmic
  - j. otorhinolaryngology
  - k. peripheral vascular
  - l. pulmonary
  - m. reproductive
  - n. skeletal
4. Identify the following surgical pathologies:
  - a. abnormal anatomy
  - b. disease processes
  - c. malignancies
  - d. traumatic injuries

**B. Microbiology (6 items)**

1. Apply principles of surgical microbiology to operative practice:
  - a. classification and pathogenesis of microorganisms (e.g., cultures, pelvic washings, etc.)
  - b. infection control procedures (e.g., aseptic technique)
  - c. principles of tissue handling (e.g., Halsted principles, tissue manipulation methods, traction/counter traction)
  - d. stages of, and factors influencing wound healing (e.g., condition of patient, wound type)
  - e. surgical wound classification
2. Identify and address factors that can influence an infectious process.

**C. Surgical Pharmacology (6 items)**

1. Apply principles of surgical pharmacology to operative practice:
  - a. anesthesia related agents and medications; complications from drug interactions (e.g., malignant hyperthermia)
  - b. methods of anesthesia administration (e.g., general, local, block, MAC)
  - c. types, uses, action, and interactions of drugs and solutions (e.g., hemostatic agents, antibiotics, IV solutions)
  - d. weights, measures, and conversions
2. Maintain awareness of maximum dosage (e.g., xylocaine, marcaine, heparin, epinephrine).

**SAMPLE QUESTIONS FOR THE CST EXAMINATION**

The following questions are representative of those which appear on the CST examination. For the following questions, choose the one best answer to each.

**1. To revascularize the heart muscle, a graft may be anastomosed between which of the following vessels?**

- A. Aorta and coronary artery
- B. Aorta and superior vena cava
- C. Carotid artery and pulmonary vein
- D. Pulmonary artery and coronary artery

**2. When performing a urinary bladder catheterization it is ESSENTIAL that the circulator:**

- A. Shave the pubis
- B. Keep the catheter tip sterile
- C. Inflate the balloon in the urethra
- D. Use the largest catheter available

**3. Traction sutures are used on common duct explorations to:**

- A. Ligate the duct
- B. Close the duct
- C. Hold the duct open
- D. Keep the stones in

**4. In which of the following prostatic approaches is a resectoscope used?**

- A. Perineal
- B. Suprapubic
- C. Retropubic
- D. Transurethral

**5. Heaney clamps are used MOST frequently on a:**

- A. Hysterectomy
- B. Lobectomy
- C. Cystectomy
- D. Gastrectomy

**ANSWERS: 1-A, 2-B, 3-C, 4-D, 5-A**