

Section Five

Content Outline

SURGICAL TECHNOLOGIST CERTIFYING EXAMINATION CONTENT OUTLINE

The CST examination content is based on tasks performed by CSTs nationwide. Job analysis surveys are 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 200 questions, 175 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 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. PERI-OPERATIVE CARE (105 items)

A. Pre-Operative Preparation (29 items)

1. Review surgeon's preference card.
2. Verify availability of surgery equipment (e.g., reserve equipment for surgery).
3. Prepare and maintain operating room environment according to surgical procedure (e.g., temperature, lights, suction, and furniture).
4. Utilize preoperative documentation (e.g., informed consent, advanced directives, allergies, laboratory results).
5. Obtain and apply additional equipment (e.g., pneumatic tourniquet, sequential compression devices, thermoregulatory devices).
6. Don personal protective equipment.
7. Obtain instruments, supplies, and equipment and verify readiness for surgery.
8. Check package integrity of sterile supplies.
9. Open sterile supplies/instruments while maintaining aseptic technique.
10. Perform surgical scrub (e.g., initial, waterless).
11. Assemble, inspect, and set up sterile instruments and supplies for surgical procedures.
12. Gown and glove sterile team members.
13. Participate in "Time Out".
14. Drape the patient.
15. Transport patient to and from operating room utilizing correct patient positioning.
16. Transfer patient to operating room table.
17. Apply patient safety measures (e.g., safety strap, protective padding, x-ray safety).
18. Apply patient monitoring devices.
19. Position the patient.
20. Prepare surgical site (e.g., hair removal, surgical preparation).
21. Consider patient needs (e.g., pediatrics, immuno-compromised, patient allergies).
22. Don gown and gloves.
23. Perform medical hand wash.
24. Secure cords/tubing to drapes and apply light handles.
25. Drape specialty equipment (e.g., c-arm, Da Vinci, microscope).

B. Intra-Operative Procedures (66 items)

1. Provide intra-operative assistance under the direction of the surgeon.
2. Perform counts with circulator at appropriate intervals.
3. Identify instruments by:
 - function.
 - application.
 - classification.
4. Prepare bone and tissue grafts (e.g., allograft, autograft, synthetic).
5. Anticipate the steps of surgical procedures.
6. Differentiate among the various methods and applications of hemostasis (e.g., mechanical, thermal, chemical).
7. Specify methods of operative exposure.
8. Place and secure retractors.
9. Verify with surgeon the correct type and/or size of implantable devices.
10. Pass instruments and supplies during surgery.
11. Irrigate, suction, and sponge operative site.
12. Monitor and maintain aseptic technique throughout the procedure.
13. Assemble, test, and operate specialty equipment during surgery.
14. Utilize specialty equipment:
 - a. microscopes.
 - b. computer navigation systems.
 - c. thermal ablation.
 - d. robotic technology.

Section Five

Content Outline

- e. laser technology (e.g., holmium, argon, CO2 beam coagulators).
 - f. ultrasound technology (e.g., harmonic scalpel,
 - g. phacoemulsification).
 - h. endoscopic technology.
 - i. power equipment and fracture sets.
15. Verify, mix, and label all medications and solutions.
 16. Minimize intra-operative cross contamination.
 17. Follow Standard and Universal precautions.
 18. Monitor medication and solution use.
 19. Prepare drains, catheters, and tubing for insertion.
 20. Verify, prepare, and label specimen(s).
 21. Observe patient's intra-operative status (e.g., monitor color of blood, blood loss, patient position).
 22. Apply thermal surgical techniques and safety precautions (e.g., cryo-surgery, laser surgery, electrical surgery unit (ESU)).
 23. Prepare suture materials.
 24. Cut suture material as directed.
 25. Identify appropriate usage of sutures/needles and stapling devices.
 26. Provide assistance with stapling devices.
 27. Perform appropriate actions during an emergency.
 28. Initiate preventative actions in potentially hazardous situations.
 29. Connect and activate drains to suction apparatus.
 30. Prepare and apply sterile dressings.
 31. Assist in the application of casts, splints, braces, and similar devices.

C. Post-Operative Procedures (10 items)

1. Report abnormal post-operative findings (e.g., bleeding at surgical site, Hematoma, rash).
2. Transfer patient from operating table to stretcher.
3. Remove drapes and other equipment (e.g., suction, cautery, non-disposable items) from patient.
4. Perform room clean up after surgery.
5. Dispose of contaminated waste and drapes after surgery in compliance with Standard Precautions.
6. Dispose of contaminated sharps after surgery in compliance with Standard Precautions.
7. Report use of local anesthetic.

8. Complete terminal cleaning of operating room.
9. Transport laboratory specimens.
10. Participate in case debrief (e.g., following sentinel event).

II. ADDITIONAL DUTIES (20 items)

A. Administrative and Personnel (10 items)

1. Revise surgeon's preference card as necessary.
2. Utilize computer technology for:
 - a. surgeon's preference cards.
 - b. interdepartmental communication.
 - c. continuing education.
 - d. research.
3. Follow hospital and national disaster plan protocol (e.g., safety drills, mass casualty drills, biologic hazard).
4. Recognize safety and environmental hazards (e.g., fire, chemical spill, laser, smoke).
5. Follow proper cost containment processes.
6. Apply ethical and legal practices related to surgical patient care.
7. Use interpersonal skills (e.g., listening, diplomacy, responsiveness) and group dynamics.
8. Understand the importance of cultural diversity.
9. Serve as preceptor to perioperative personnel.
10. Understand concepts of death and dying.
11. Participate in organ and tissue procurement.
12. Understand basic principles of electricity and electrical safety.

B. Equipment Sterilization and Maintenance (10 items)

1. Operate cleaning and sterilizing devices (e.g., ultrasonic washers, autoclave, cart washer).
2. Troubleshoot equipment malfunctions.
3. Decontaminate and clean instruments and equipment.
4. Inspect, test, and assemble instruments and equipment.
5. Package and sterilize instruments and equipment.
6. Perform quality assurance functions (e.g., biological monitoring of sterilization methods).
7. Maintain equipment records and logs (e.g., Sterrad, biological, laser log, sterilizers).
8. Sterilize instruments for immediate use (e.g., short cycle).

III. BASIC SCIENCE (50 items)

A. Anatomy and Physiology (30 items)

Section Five

Content Outline

1. Use appropriate medical terminology and abbreviations.
2. Demonstrate knowledge of anatomical systems as they relate to the surgical procedure:
 - a. cardiovascular.
 - b. gastrointestinal.
 - c. endocrine.
 - d. integumentary.
 - e. lymphatic.
 - f. muscular.
 - g. neurological.
 - h. peripheral vascular.
 - i. reproductive.
 - j. pulmonary.
 - k. otorhinolaryngology.
 - l. skeletal.
 - m.genitourinary.
 - n. ophthalmic.
3. Demonstrate knowledge of human physiology as they relate to the surgical procedure:
 - a. cardiovascular.
 - b. gastrointestinal.
 - c. endocrine.
 - d. integumentary.
 - e. lymphatic.
 - f. muscular.
 - g. neurological.
 - h. peripheral vascular.
 - i. reproductive.
 - j. pulmonary.
 - k. otorhinolaryngology.
 - l. skeletal.
 - m.genitourinary.
 - n. ophthalmic.
4. Identify the following surgical pathologies:
 - a. abnormal anatomy.
 - b. disease processes.
 - c. traumatic injuries.
 - d. malignancies.

B. Microbiology (10 items)

1. Apply principles of surgical microbiology to operative practice:
 - a. classification and pathogenesis of microorganisms.
 - 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 (10 items)

1. Apply principles of surgical pharmacology to operative practice:
 - a. anesthesia related agents and medications.
 - b. blood and fluid replacement.
 - c. complications from drug interactions (e.g., malignant hyperthermia).
 - d. methods of anesthesia administration (e.g., general, local, block).
 - e. types, uses, action, and interactions of drugs and solution (e.g., hemostatic agents, antibiotics, IV solutions).

- f. weights, measures, and conversions.
2. Maintain awareness of maximum dosage.

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