

## ASSOCIATION OF SURGICAL TECHNOLOGISTS

### *SURGICAL TECHNOLOGIST CERTIFYING EXAM STUDY GUIDE, 3<sup>RD</sup> Ed.*

#### PRACTICE EXAM #1: EXPLANATIONS WITH REFERENCES

##### Reference Key

###### **Alex**

Rothrock, J. C. (2011). *Alexander's care of the patient in surgery*. (14<sup>th</sup> ed.). St. Louis: Elsevier

###### **Anatomy**

Tortora, G., & Nielsen, M. T. (2009). *Principles of human anatomy* (11<sup>th</sup> ed.). Hoboken, NJ: John Wiley & Sons

###### **B&K**

Phillips, N. (2013). *Berry & Kohn's operating room technique* (12<sup>th</sup> ed.). St. Louis: Elsevier.

###### **Med Term**

Gyllys, B. A., & Wedding, M. E. (2009). *Medical terminology systems: A body systems approach* (6<sup>th</sup> ed.). Philadelphia: F.A. Davis.

###### **Memmler's**

Cohen, B. J., & Taylor, J. J. (2009). *Memmler's the human body in health and disease* (11<sup>th</sup> ed.). Philadelphia: Lippincott Williams & Wilkins.

###### **Micro**

Price, P., & Frey, K. B. (2003). *Microbiology for surgical technologists*. Clifton Park, NY: Delmar Learning.

###### **OR Instr**

Tighe, S. M. (2007). *Instrumentation for the operating room* (7<sup>th</sup> ed.). St. Louis: Mosby.

###### **Pharm**

Snyder, K. C., & Keegan, C. (2006). *Pharmacology for the surgical technologist* (2<sup>nd</sup> ed.). St. Louis: Saunders.

###### **Physiology**

Rhoades, R., & Pflanzer, R. (2003). *Human physiology* (4<sup>th</sup> ed.). Pacific Grove, CA: Brooks/Cole.

## ST for ST

Frey, K. B., & Ross, T. (Eds.). (2014). *Surgical technology for the surgical technologist: A positive care approach* (4<sup>th</sup> ed.). Clifton Park, NY: Delmar Cengage Learning.

1. A. The teeth are located in the sockets of the alveolar processes of the mandible and maxillae. (Anatomy 183)
2. D. Clean-contaminated procedures include those in which the aerodigestive tract is entered. The bronchoscope is inserted through the mouth and into the bronchial tubes; therefore, the procedure is considered clean, not sterile (ST for ST 1013 )
3. B. Alpha-chymotrypsin is a solution used to soften the zonules holding the lens before cataract surgery to ease extraction of the lens. (Pharm 224)
4. B. The patient should be placed in the elevator entering head first and exit feet first when being transported to the O.R. on the stretcher. (ST for ST 349 )
5. D. Pfannenstiel's incision is a curved transverse incision across the lower abdomen and used frequently in gynecologic surgery. (ST for ST 543 )
6. D. Metal trays that are perforated or have a mesh bottom should be placed on the sterilizing cart flat. (ST for ST 158 )
7. C. Potassium plays four important roles: influences the electrical excitability of cells; amount of potassium in cells affects cell volume; potassium balance is important in maintaining the acid-base balance; amount of potassium in cells affects cell metabolism. Hyperkalemia, an abnormal level of potassium, can be life threatening causing cardiac irregularities. (Physiology 778-779)
8. A. Curved Mayo scissors are large scissors with thick blades that are used to cut tough tissue such as fascia, tendons and muscle. (ST for ST 266 )
9. A. The argon laser beam can travel through clear fluids and tissues. (ST for ST 117 )
10. D. Informed consent must be obtained from the patient before any invasive procedure can be performed. It protects the patient in that it is verification he/she understands the condition to be treated and the intervention to be performed. (ST for ST 32 )
11. A. The cardia is the portion of the stomach that surrounds the superior opening of the stomach. (Anatomy 794)
12. D. Low-level disinfectants kill most types of bacteria and some fungi and viruses, but do not kill spores and *M. tuberculosis*. (ST for ST 142 )

13. B. Webbing of the digits is syndactyly. (ST for ST 780 )
14. C. Surgical packs should be opened on the back table. (ST for ST 281 )
15. B. The islets of Langerhans secrete glucagon, insulin, somatostatin, and pancreatic polypeptide. (Physiology 454)
16. C. The removal of a tooth or teeth is an extraction procedure. The resection of the soft tissue and excision of the bone surrounding the tooth prior to the removal is called odontectomy, (ST for ST 705 )
17. A. *Escherichia coli* is a gram-negative rod that is part of the normal flora of the intestinal tract of humans and is also an opportunistic bacteria. (Micro 181)
18. B. When using four towels for squaring off the incision site, the first scrub surgical technologist should stand on the same side as the surgeon. (ST for ST 376 )
19. C. The skin is rendered surgically clean when a properly performed surgical scrub is done. (ST for ST 333 )
20. A. The pancreatic duct joins the common bile duct and enters the duodenum as a common duct called the hepatopancreatic ampulla or the ampulla of Vater. (Physiology 711)
21. D. The patient should be identified by name, date of birth and physician on their ID bracelet prior to transporting the patient to the OR. (ST for ST 348 )
22. C. Spirilla are spiral-shaped bacteria. (Micro 24)
23. A. The gallbladder stores bile until it is needed in the small intestine. (Physiology 712)
24. B. The circulator is not a part of the sterile team. The circulator performs his/her duties on the periphery of the sterile field. (ST for ST 7 )
25. B. Sliding doors are usually used in the O. R. because they eliminate air currents caused by swinging doors, but a disadvantage is they do not aid in controlling OR temperature. (ST for ST 82 )
26. C. Time relates to the length of time the surgical technologist is exposed to the ionizing radiation. Shielding means donning lead aprons and other lead shield devices for protection from the radiation. Distance means standing as far away as possible out of the path of the direct beam of ionizing radiation. (ST for ST 90 )
27. A. The duodenum starts at the pyloric sphincter of the stomach. (Anatomy 805)

28. B. The surgical position frequently used for patients undergoing kidney surgery is the lateral position with the operative site exposed. (ST for ST 369 )
29. A. Most rickettsiae are obligated intracellular parasites. They are usually transmitted by arthropod vectors. (Micro 240)
30. A. A binocular microscope is used during an examination of the vagina called a colposcopy; *colpo* being a root word that means “vagina”. (B&K 696).
31. A. Tamponade is the compression of the heart due to a collection of blood or fluid within the pericardium. (ST for ST 1046 )
32. A. The anesthesia provider makes the decision as to when the patient is stable and ready for transport from the O.R. to the PACU. (ST for ST 392 )
33. D. The suffix –centesis means surgical puncture; for example, when combined with arthrocentesis it means surgical puncture of a joint space with a needle to remove fluid. (Med Term 15)
34. C. The appendix is attached to the cecum. (Anatomy 810)
35. A. A Gram stain determines the shape and grouping characteristics of bacteria. (Micro 16)
36. C. Dilating drops are called mydriatics and are used to dilate the pupil for examination of the retina, refraction testing, or easier removal of the lens. (Pharm 227)
37. B. U-drape is a type of nonfenestrated split sheet in which the tails are created by a U-shape in the center of the drape. (ST for ST 281 )
38. B. Never remove a patient’s identification bracelet unless the patient is discharged from the facility. (ST for ST 348 )
39. C. Supine position is the optimal surgical position for mitral valve replacement procedure. (ST for ST 362 )
40. D. The argon laser is used because the beam travels through clear tissues without heating them making it ideal for use on retinal disorders. (ST for ST 117; 624 )
41. C. The biological indicator (BI) contains *Bacillus stearothermophilus* which is killed when exposed to steam sterilization conditions. Therefore, the BI is the only test that guarantees sterility. (ST for ST 165-166 )

42. A. The greater omentum is an apron-like structure that lies over the intestines. (Anatomy 785-786)
43. B. Bacteria that can live without oxygen are anaerobes. (Micro 57)
44. B. A fistula is an abnormal tract that is open at both ends; it most often develops after bladder, bowel and pelvic procedures. (ST for ST 460; 1213 )
45. D. An antagonist drug neutralizes or impedes the action of another drug; that is, reverses its effects. (Pharm 30)
46. D. Circumferential is the term that describes the type of skin prep of an entire extremity. (ST for ST 373-374 )
47. B. If a tumor of an ovary is found to be malignant, the surgeon will excise the other ovary, both fallopian tubes, and the uterus to ensure that all cancer cells have been removed. (B & K 707 )
48. C. Kyphosis is an exaggeration of the thoracic curve of the spine resulting in a condition commonly called "hunchback". (B & K 814 )
49. B. Hallux valgus is the medical term for a bunion which is a bony exostosis located on the medial side of the first metatarsal head of the big toe. (ST for ST 899 ).
50. A. Another name for a lower oblique incision is inguinal incision. (B & K 550 )
51. A. The mesentery binds the small intestine to the posterior abdominal wall. (Anatomy 787)
52. A. Commensalism is a relationship between two organisms in which they occupy the same area in close proximity and one organism benefits while the second is unharmed. (Micro 100)
53. A. Methylprednisolone acetate (Depo-Medrol®) is a steroid used topically to diminish inflammation after ophthalmic surgery. (Alex 597)
54. B. A witness verifies that the patient who is illiterate marks with an "X". (ST for ST 32 )
55. A. The direction of the stretcher should be oriented feet first, side rails up when a patient is being transported to the O.R. department on the stretcher. (ST for ST 348-349 )

56. A. Blood or a urine sample should be given preoperatively in a premenopausal woman to check for human chorionic gonadotropin (HCG) which is an indicator for pregnancy. (Physiology 962)
57. C. Gowns are considered sterile only in front from chest to level of sterile field and the sleeves from above to the elbows to the cuffs. (ST for ST 329 )
58. B. A coude is a urinary catheter with a small, curved tapered tip. (ST for ST 285 )
59. C. Reverse Trendelenburg position provides good exposure of the operative site for a thyroidectomy and allows the viscera to fall away or toward the feet to provide better exposure of the gallbladder. (ST for ST 362 )
60. B. Patent ductus arteriosus is a congenital defect in which the fetal blood vessel between the pulmonary artery and aorta does not close. (ST for ST 1080 )
61. B. Formalin is the most common preservative solution that tissue specimens are placed in. (ST for ST 96 )
62. A. The surgeon should be immediately notified and a recount completed. (ST for ST 387)
63. C. The parotid glands are located inferior and anterior to the ears between the skin and masseter muscle. The parotid glands are attacked by the mumps virus. (Memmler's 425)
64. A. An event/incident report is completed by members of the surgical team that are witness to any unusual or adverse event that affected the care provided to the surgical patient. (ST for ST 35 )
65. B. The Trendelenburg position is best used for pelvic and lower abdominal procedures such as an abdominal hysterectomy. The position allows the viscerat to fall away or toward the head for better exposure of the operative site. (ST for ST 362 )
66. B. Adaptic™ is a type of nonadherent dressing that can be used as the inner layer of a three-layer dressing. (ST for ST 283 )
67. C. A fenestrated drape is a drape with an opening such as an aperture drape commonly used to drape eyes. (ST for ST 280 )
68. A. Hernia that occurs within Hesselbach's triangle and does not have a sac is a direct inguinal hernia. (ST for ST 422 )

69. B. The Kocher is a type of oblique incision that is used for exposing the biliary tract (right side) or spleen (left side). (ST for ST 419 )
70. C. Bakes common duct dilators are used to dilate the common bile duct during a common bile exploration for gallstones. (OR Instr. 58)
71. B. Ligature, also called ties or stick ties when a needle is attached, are strands of suture material used to tie off a blood vessel to stop bleeding. (ST for ST 179 )
72. C. The common bile duct is formed by the junction of the cystic and hepatic ducts, and varies in length from 5-17 cm on its path to the duodenum (ST for ST 438 ).
73. B. The functions of the cerebrum include regulating the initiation and termination of voluntary movements of the body, regulating the muscle tone that is necessary for body movements and control the subconscious contractions of skeletal muscles. (Anatomy 633)
74. D. Parasitism is a relationship in which an organism benefits at the expense of the host microorganisms. (Micro 100)
75. A. An acute disease is one that has a rapid onset and is followed by a speedy recovery. (Memmler's 83)
76. B. Mitochondria produce energy-rich ATP. (Micro 30)
77. D. Balanced anesthesia is also known as neuroleptanesthesia. (Pharm 327)
78. C. The surgeon is ultimately responsible for obtaining the surgical consent. (ST for ST 32 )
79. A. The most commonly used position for neurosurgical procedures is supine since it allows exposure to the frontal, parietal, and temporal lobes. (ST for ST 1142 )
80. B. The serosa is the outermost layer of most portions of the gastrointestinal tract. (Anatomy 812)
81. C. The donor site should be scrubbed with a colorless antiseptic solution, such as chlorhexidine gluconate, to allow the surgeon the ability to evaluate the vascularity of the graft postoperatively. (B & K 514 )
82. A. A procedure in which the patient is placed in the lateral position and a flank incision is made a transverse drape will be used. (ST for ST 281)
83. C. The safety belt should be placed approximately 2 in. proximal to the knees. (ST for ST 362 ).

84. B. An epispadias repair is performed to correct the congenital absence of the anterior wall of the urethra and abnormal location of the urethral orifice on the dorsum of the penis. (ST for ST 884 )
85. A. The laser provides an intense and concentrated beam of light. (ST for ST 87; 114 )
86. B. The most common cause of intracerebral hemorrhage is hypertension. (Alex 253)
87. A. The larynx is a small passageway between the pharynx and the trachea. (Anatomy 758)
88. B. Trauma is the most common cause of retinal detachment. (Alex 622)
89. D. Pulmonary embolism can be caused by fat which dislodges after fracture of a long bone or pelvis, or when performing a total hip arthroplasty. (B & K 783 )
90. A. The Penrose drain is a passive drain made from latex that relies on gravity for wound drainage. (ST for ST 287 )
91. B. The larynx is the location of the vocal cords. (Anatomy 758)
92. B. Vaccination is artificially acquired active immunity. (Micro 30)
93. C. Cricoid pressure occludes the esophagus to prevent regurgitation. (Pharm 333)
94. A. A trephine is placed on the cornea to make the circular corneal cut and into the anterior chamber during a keratoplasty. (ST for ST 619 )
95. B. A minimum of four people is required. The anesthesia provider is responsible for the head and neck of the patient, one person on the side of the stretcher, one person on the side of the O.R. table, and a person at the end of the O.R. table responsible for the feet and legs. (ST for ST 361 )
96. D. Standard Precautions, as defined by the CDC in 1996, are a combination of Universal Precautions and body substance isolation rules that state all body fluids and blood should be considered infectious. (ST for ST 90-91 ).
97. D. Separation anxiety is the major source of distress for toddler and preschool aged patients. (ST for ST 54 )
98. C. The nasopharynx is the uppermost portion of the pharynx; the middle portion of the pharynx is the oropharynx; and the lowest portion of the pharynx is the laryngopharynx. (Anatomy 757)



99. C. Otoplasty is performed to correct a protruding auricle of the ear. (B & K 152 857)
100. A. A patient that sustains an injury, either unintentional or intentional, caused when a health care provider is caring for the patient is called an iatrogenic injury. (ST for ST 28 )
101. C. The choroid is highly vascularized and provides nutrients to the posterior surface of the retina. (Anatomy 705)
102. D. Safety refers to the patient's perception that his/her environment is safe and free from danger. (ST for ST 49-50 )
103. D. Abdominal aortic aneurysms occur chiefly below the renal arteries and between the renal and iliac arteries. (ST for ST 1114 )
104. A. Heparinized saline is an irrigating solution used to flush the inside of an artery. (ST for ST 216 )
105. C. The bone-to-bone fixation is first accomplished followed by reanastomosis of blood vessels and nerves. (B & K 855 )
106. D. A full-thickness skin graft encompasses both the epidermis and all of the dermis; a split-thickness skin graft includes the epidermis and approximately half of the dermis. (ST for ST 730 )
107. C. Skeletal muscle tissue is striated because the fibers contain alternating light and dark bands perpendicular to the long area of the fibers. It is considered voluntary because it is controlled consciously. (Anatomy 288)
108. A. Microtia is the medical term for absence of the external ear or auricle. (ST for ST 749 )
109. C. The tourniquet should be deflated every 1 ½ hours to allow blood flow into the leg and transport oxygen to prevent tissue necrosis. (B & K 584 )
110. A. *Clostridium perfringens* causes gas gangrene. (Micro 73)
111. D. Chest rolls should span the distance bilaterally between acromioclavicular joint to iliac crest. (B & K 506 )
112. C. The stapes cover the opening between the middle and inner ear known as the oval window. (Anatomy 712)
113. B. Jack-knife is another name for the Kraske position. (ST for ST 368 )

114. B. Kitner dissecting sponges are small rolls of cotton tape that are tightly rolled and used by the surgeon for blunt dissection. The sponge is loaded on the tip of a clamp such as a Kelly. (ST for ST 282 )
115. D. The Cottingham punch is used to create the correct size of the donor cornea during a keratoplasty. (ST for ST 618 )
116. A. A complete displacement of a joint or displacement of one articular surface from another is called a luxation and a partial dislocation is called a subluxation. (ST for ST 900 )
117. D. A disorder in which fatty deposits form on the walls of arteries known as atherosclerosis. (ST for ST 1103 )
118. B. Plaster rolls used in casting should be submerged in slightly or lukewarm water at approximately 70-75° F. (B&K 780 )
119. A. The cornea is nonvascular, transparent and covers the iris. (Anatomy 704)
120. C. Surgical masks should be changed after each case. (ST for ST 327 )
121. B. Bacillus is a rod-shaped bacteria. (Micro 24)
122. D. Gas sterilizers operate at a lower temperature as compared to steam sterilizers. The gas sterilizer operates between 85-145° F. (ST for ST 167 )
123. C. If a towel clip penetrates a sterile drape, the tips of the clip must be considered contaminated and it should not be removed until the end of the procedure. (ST for ST 173 )
124. A. Res ipsa loquitur means “the thing speaks for itself”, referring that the harm to the patient came from a given act of which the care giver had sole control. (ST for ST 29 )
125. B. The glottis is the space between the vocal cords. (Anatomy 760-761)
126. C. *Clostridium tetani* could possibly be found in a penetrating wound caused by a rusty nail. (Micro 215)
127. B. The Love nerve root retractor is used during spinal procedures such as a laminectomy to gently retract the nerve roots. (ST for ST 1139 )
128. D. Another name for electro-surgical unit’s return electrode is grounding pad. (ST for ST 110 )

129. C. 16 Fr is the size of a Foley catheter commonly used on adults. (ST for ST 359 )
130. A. A tumor arising from the covering of the brain is a meningioma. (ST for ST 1150 )
131. C. The sclera gives shape to the eyeball and makes it more rigid. (Anatomy 704)
132. A. Flagella are fine, thread-like appendages that provide bacteria with motion. (Micro 32)
133. C. The Trendelenburg position allows the viscera to fall away or toward the head providing better exposure of the operative site when performing a lower abdominal or pelvic procedure. (ST for ST 362 )
134. D. Glutaraldehyde is a liquid disinfecting and sterilizing agent. To sterilize an item it must be submersed for 10 hours. (ST for ST 143 )
135. B. Blood pressure is measured in two numbers, systolic over diastolic. The relaxation phase of the heart beat is called the diastolic blood pressure. (ST for ST 252 )
136. C. Cerumen is another term for earwax. (Anatomy 130)
137. B. The auditory ossicles of the middle ear are the malleus, incus and stapes. (Anatomy 712)
138. A. Exsanguination is the term for the process of removing blood from an extremity. (B&K 585 )
139. C. The nasolacrimal duct carries the lacrimal fluid and tears into the nasal cavity; the duct can become obstructed in pediatric patients who experience chronic URIs. (B & K 149) no change
140. B. The surgical technologist is responsible for setting up the sterile field. (ST for ST 8) no change
141. C. Cell saver transfusion cannot be used in the presence of cancer cells, gross contamination, or infections. (Pharm 255-256)
142. D. Intraluminal staplers are used to anastomose tubular organs in the gastrointestinal tract; they are often used during resection and reanastomosis of the colon or rectum. (ST for ST 319 )

143. A. Satinsky, Herrick and Mayo clamps are commonly used during procedures on the kidney; specifically they are clamped onto the kidney pedicle. (ST for ST 812 ; OR Instr 101)
144. B. The nasal cavity is divided into right and left sides by the nasal septum. (ST for ST 659 )
145. C. The Ellik evacuator is filled with irrigation solution by the first scrub surgical technologist and it is used by the surgeon for the irrigation/evacuation of the bladder to remove prostatic tissue fragments during a TURP. (ST for ST 857 )
146. A. A subdural hematoma is a large, encapsulated collection of blood over one or both cerebral hemispheres that cause intracranial pressure. (ST for ST 1151 )
147. D. The four factors of steam sterilization are pressure, temperature, moisture and time. Pressure is used to increase the temperature of the steam to the level where it will kill microbes including spores. (ST for ST 161 )
148. B. The Bowie-Dick test is only used for pre-vacuum sterilizers to check for air entrapment and is conducted daily. (ST for ST 164 )
149. A. The cochlea is a bony spiral canal in the ear. (Anatomy 712)
150. C. An enterocele is a herniation of Douglas' cul-de-sac that usually contains loops of the bowel. (B&K 701 )
151. B. Pterygium is a fleshy encroachment of conjunctiva onto the cornea. (B&K 831)
152. D. A myomectomy is the procedure performed for the removal of fibromyomas or fibroid tumors from the uterine wall. (ST for ST 565 )
153. C. Baker's cysts affect the popliteal fossa. (Alex 759)
154. B. 2% glutaraldehyde is a type of high-level disinfectant solution; the device must be complete submerge for 20 minutes at room temperature in order to be disinfected. (ST for ST 143 )
155. D. The eardrum is also referred to as the tympanic membrane. (Anatomy 71)
156. C. The skin, along with its epithelial structures and subcutaneous tissue, is destroyed in a third-degree burn. (ST for ST 732 )

157. A. Ménière's syndrome involves an increased amount of endolymph that enlarges the membranous labyrinth, which is located in the inner ear. (Alex 688).
158. B. The vomer forms the inferior and posterior parts of the nasal septum. (Anatomy 132)
159. A. *B. stearotherophilus* is a microbe that is highly resistant to destruction by steam sterilization, but does not cause disease in humans. (ST for ST 166 )
160. C. A myelogram is a diagnostic procedure in which radiopaque dye is injected into the spinal subarachnoid space through a lumbar puncture. The myelogram would diagnose osteophytes. (ST for ST 399 ).
161. B. A cystocele is a herniation of the bladder that causes a downward bulge in the anterior vaginal wall, usually as a result of surgical trauma, age, or weakness of the supporting muscles of the bladder due to childbirth. (ST for ST 587 )
162. D. The steam sterilization biological indicator must be incubated for 24 hours before the reading is recorded. (ST for ST 166 )
163. C. The ethmoid sinus is located between the nose and orbits. (Anatomy 178)
164. D. Otosclerosis is the bony overgrowth of the stapes causing the footplate to become fixed to the oval window preventing the normal sound vibrations from entering the inner ear. (ST for ST 644 )
165. B. A compound or open fracture is one in which the bone has penetrated the skin layer and protrudes through the opening. (ST for ST 902-903 )
166. A. McBurney incision is primarily used for removal of the appendix (ST for ST 323 )
167. C. The steam biological indicator must be incubated at a temperature of 55-60° C. (ST for ST 166 )
168. D. Hysterectomy is the medical term that means removal of the uterus. *Hyster* is the root word that means "uterus"; *-ectomy* is a suffix meaning "removal or excision of". (Med Term 363, 373)
169. A. The ultrasonic cleaner uses the process of cavitation to remove small organic particles and soil from the areas of instrumentation that can't be accomplished through manual or mechanical cleaning. (ST for ST 151 )

170. C. Epistaxis is the medical term for nosebleed. (ST for ST 649 )
171. B. Air trapped in the lumen will prevent steam from contacting the inner surface of the lumen. A residual amount of distilled water should be left inside the lumen which will boil and turn to steam to displace the air. (ST for ST 158 )
172. A. Intussusception is the most common emergency surgery for neonates where the portion of the bowel slides into another segment and causes obstruction. The motion is like a telescope. (B&K 142-143 )
173. D. The minimum exposure of minutes at 270-276° F must occur in order for items to be rendered sterile. (ST for ST 164 )
174. C. Excision of the tunica vaginalis of the testis is called a hydrocelectomy. (ST for ST 870-872 )
175. B. When immediate-use sterilization (formerly called “flash sterilization”) is used to sterilize items with lumens in the gravity sterilizer, the items must be exposed to 270° F for 10 minutes. (ST for ST 161 )