

**ASSOCIATION OF SURGICAL TECHNOLOGISTS**  
***SURGICAL TECHNOLOGIST CERTIFYING EXAM STUDY GUIDE, 3<sup>RD</sup> Ed.***  
**PRACTICE EXAM #4: 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**

Gyls, 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) B - A 1/4" or 1/2" Penrose drain is used to gently retract the spermatic cord; it should be placed in saline prior to handing to the surgeon. (ST for ST 425-426 )
- 2) B - To decompress the bladder and prevent injury to the organ during a hysterectomy, an indwelling Foley catheter is preoperatively inserted into the patient. (ST for ST 356 )
- 3) D - Potts-Smith scissors are available in various angles which allow for inserting into the incision made with the knife blade and extending. (ST for ST 266-267 )
- 4) A - The Schiller test involves staining the cervix with Lugol solution. The glycogen in the cervical epithelium takes up the iodine and abnormal tissues that have little to no glycogen do not stain brown, therefore indicating areas of tissue that should be biopsied. (ST for ST 220 , )
- 5) A - The portion of the aorta that passes upward behind the pulmonary trunk as it emerges from the left ventricle is called the ascending aorta. (ST for ST 1092 )
- 6) C - Chemical indicators such as autoclave tape are impregnated with a dye that changes color when exposed to the sterilization process. (ST for ST 165 )
- 7) C - The hair is the patient's property who may want to have it formed into a wig, require it for religious reasons or it may be a memento. (B&K 794)
- 8) A - A porous, absorbent towel should be placed between nested basins to absorb condensate, aid in air removal and allow for penetration of steam. (ST for ST 158 )
- 9) A - The femoral canal requires intramedullary reaming prior to placement of prosthesis during a total hip arthroplasty. (ST for ST 949 )

- 10) C - Registration involves a formal process where qualified individuals are listed in a registry. (ST for ST 41 )
- 11) B - Meperidine hydrochloride (Demerol®) is an analgesic. (Pharm 288)
- 12) A - A tracheotomy tray should be transported with the patient to the PACU and ward room due to the postoperative risks of inflammation and hemorrhage. (ST for ST 504 )
- 13) C - The symbol for sodium chloride is NaCl. (Pharm 244)
- 14) A - The Golgi complex, a group of organelles, processes, sorts, packages, and delivers proteins to the plasma membrane, lysosomes, and secretory vesicles. (Micro 29)
- 15) B - The Hirschmann anoscope is one of several types of retractors used to expose the rectal canal during a hemorrhoidectomy. (ST for ST 462 )
- 16) D - When a patient signs a general consent form, the patient is agreeing to all routine treatments or procedures. (ST for ST 32 )
- 17) B - Lidocaine (Xylocaine) jelly may be put into the urethra as a topical anesthesia for a cystoscopy. (Pharm 22)
- 18) D - The primary postoperative complication of carotid endarterectomy is stroke; the patient's neurological status must be closely monitored. (ST for ST 1114 )
- 19) B - The Ferris-Smith tissue forceps is a heavy duty instrument with teeth that are ideal for use during a total abdominal hysterectomy. (ST for ST 519 )
- 20) C - Surgical dressing sponges are opened after the wound is closed and the final count was performed. (ST for ST 391 )
- 21) A - The container must be considered contaminated, removed from the O.R., and returned to the sterile processing department. (ST for ST 166 )
- 22) B - The aeration cycle is necessary to remove the toxic EtO from the sterile packages and items. (ST for ST 167 )
- 23) B - Intraocular pressure is produced chiefly by the aqueous humor. (Memmler's 243)
- 24) A - The grounding pad should be positioned on the left anterior thigh of a patient undergoing a laparoscopic cholecystectomy who has a right hip prosthesis to avoid having the electrical current travel through the metal and cause a patient burn. (B&K no change 353)
- 25) B - The Auvard weighted vaginal speculum is placed with the blade along the posterior vaginal wall to provide exposure. (ST for ST 575 )

- 26) B - Trendelenburg position allows displacement of the abdominopelvic organs to aid in visualization of the operative site. (ST for ST 362 )
- 27) C - The subclavian artery arises from the left side of the aortic arch and descends into the arm. (Anatomy 419)
- 28) C - The cerebellum is at the base of the brain and is responsible for balance and coordination. (Memmler's 221)
- 29) B - The ultrasonic cleaner uses the process of cavitation to dislodge minute particles of soil and debris from surgical instruments. (ST for ST 152 )
- 30) C - Colles' fracture is the name for a dorsally angulated fracture and is usually repaired by closed reduction with the use of the C-arm and casting. (ST for ST 902 )
- 31) D - The Ferguson gallstone scoop can be used to remove gallstones during a cholecystectomy. (ST for ST 416 )
- 32) A - De Quervain's is caused by inflammation of the tendons in the first dorsal compartment of the wrist. The dorsal carpal ligament is cut to release the tendons. (ST for ST 768 )
- 33) B - K-Y jelly is used to lubricate the catheter tip to aid in insertion and minimize mucosal irritation. (ST for ST 359 )
- 34) A - QID is an abbreviation meaning 4 times per day. (Med Term 534)
- 35) D - A pressure dressing is a type of three-layer dressing to which it is used to eliminate dead space. (ST for ST 283-284 )
- 36) C - Prone position places pressure on the thorax and abdomen making it difficult to breathe; chest rolls are placed to slightly elevate the patient's upper torso to facilitate ventilation. (ST for ST 367 )
- 37) D - For a LAVH, the patient is placed in the lithotomy position. (ST for ST 364, 366 )
- 38) B - The spleen is located on the left upper quadrant and a left subcostal incision is used for exposure. (ST for ST 420 )
- 39) B - Lidocaine with epinephrine is contraindicated in patients who are hypertensive since epinephrine increases the blood pressure. (ST for ST 185 )
- 40) B - The middle fossa approach provides good extradural exposure for small tumors. (ST for ST 1150 )
- 41) C - A special written consent must be obtained from a patient undergoing surgical procedures, fertility treatments, chemotherapy, or experimental treatment. (ST for ST 32 )

- 42) D - Levarterenol (Levophed®) is used to treat hypotension and shock. (Pharm 362)
- 43) D - Dextran is a plasma volume expander that acts by drawing fluid from tissues, thus decreasing blood viscosity. (Pharm 257)
- 44) B - Chole is a combining form meaning bile. (Med Term 541)
- 45) D - A nonwoven disposable wrapper should not be used to line the bottom of the tray since the water-repellent wrapper would cause condensate to collect. (ST for ST 158 )
- 46) C - The skin incision for an abdominoplasty is a low transverse. (ST for ST 420 )
- 47) A - Two surgical instruments commonly used to remove the midline hump in the nose are chisel or rasp. (ST for ST 754 )
- 48) B - The Bowie-Dick test is used for prevacuum sterilizers to confirm there is no air entrapment occurring. (ST for ST 164 )
- 49) A - HIPAA took effect in 2003; it is the first federal legislation to establish privacy standards for patients. (ST for ST no change 39)
- 50) D - The CDC and NIOSH recommend the use of a respirator when caring for a TB patient. (ST for ST 132-133 )
- 51) D - When a patient is illiterate, but understands the verbal explanation, he/she marks the informed consent with an 'x'. (ST for ST 32 )
- 52) D - Isopropyl alcohol should not be used to clean endoscopes because it breaks down the cement. (ST for ST 145 )
- 53) C - The non-dominant hand should be used to expose the meatus and the dominant hand to insert the catheter. (ST for ST 360 )
- 54) A - Phase 2 of wound healing is proliferation which begins approximately on the third postoperative day. (ST for ST 292 )
- 55) D - The use of the transverse rectus abdominis musculocutaneous (TRAM) flap is a type of pedicle flap reconstruction in which the tissue is transferred but remains attached to its blood supply. (ST for ST 789-790 )
- 56) D - The anesthetized patient is not moved until permission is given by the anesthesia provider. (ST for ST 361 )
- 57) C - In pinocytosis, "cell drinking", the engulfed material is a tiny droplet of extracellular fluid rather than a solid. (Anatomy 32)
- 58) A - Hypertension is a term for high blood pressure. (Med Term 191)

59) C - The halon fire extinguisher is recommended because of its low toxicity and residue is not produced. (ST for ST 87 )

60) B - The major side effect of thrombolytics is hemorrhage. (Pharm 214)

61) C - The surgical technologist should step away from the sterile field, circulator grasps glove and pulls off leaving hand exposed; he/she is regloved by another member of the sterile team. (ST for ST 388 )

62) A - The stump of the appendix is inverted into the colon and a circular purse-string suture is placed to maintain the inverted stump. (ST for ST 450 )

63) D - The proper technique for removing a drape is for the ST to hold the dressing in place while rolling the drape from head to feet, and disposing in the waste receptacle. (ST for ST 389, 391 )

64) A - Gerota's fascia surrounds the kidney to serve as a cushion. (ST for ST 825 )

65) C - Trigeminal neuralgia is a condition characterized by severe pain in the face and is paroxysmal. Chewing usually aggravates the symptoms. (Alex 815)

66) C - Humidity level is kept between 20-60% to prevent static electricity. (B&K 182; 225 )

67) A - Once the hole for a screw has been drilled, the tap is used to pre-place threads within the hole to aid with insertion of the screws. (ST for ST 936-937 )

68) A - Transsphenoidal hypophysectomy is the procedure of choice for pituitary tumors. (ST for ST 1168 )

69) D - The medial rectus muscle assists in moving the eyeballs laterally and medially; it is affected by lesions of the oculomotor or abducens nerves.

70) C - The minimum number of people is 4 - anesthesia provider at the head, person at the foot, one person on the far side of the O.R. table, other person far side of the stretcher. (ST for ST 392 )

71) C - Alcohol and solutions with alcohol should be allowed to thoroughly dry to prevent the flammable fumes from collecting under the sterile drapes and possibly igniting when electrocautery is used. (ST for ST 112 )

72) B - HAI are often acquired through the use of indwelling catheters such as the Foley catheter. (B&K 256 )

73) A - The technical term for the robotic arms is manipulator. (ST for ST 118 )

74) A - Before the surgical wound is closed the lumen of the bowel is insufflated to check for air leaks from the anastomosis. (Alex 348)

- 75) A - Hemorrhoids are thrombosed veins located within the lower rectum or anus. (ST for ST 460-461 )
- 76) B - Vitamins A, D, E and K are absorbed in the small intestine. (Physiology 719)
- 77) C - The extremity is elevated and wrapping is distal to proximal with an Esmarch or Ace bandage; once exsanguinated the tourniquet is inflated. (ST for ST 912 )
- 78) B - The internal mammary artery or saphenous vein are anastomosed to the affected coronary artery during a CABG. (ST for ST 1049 )
- 79) C - Bennett retractors are frequently used to retract the muscles during a hip pinning due to the angle of the head of the retractor. (OR Instr 144)
- 80) A - A vasovasostomy is performed for the reanastomosis of the vas deferens. (Alex 509)
- 81) C - The carbon dioxide laser is used to vaporize polymethyl methacrylate to aid in the removal of the prosthesis. (ST for ST 912 )
- 82) A - Sound waves collect in the auricle and pass on to strike the tympanic membrane. (Anatomy 711)
- 83) D - Montgomery straps are utilized for surgical wounds that require frequent dressing changes. It consists of two sections, the first has an adhesive side that sticks to the skin and a nonadhesive side with strings that are tied over the intermediate dressing layer and can be untied to perform the dressing change. (ST for ST283)
- 84) C - Allen stirrups, which aid in placing the patient in low lithotomy position, are used for the LAVH procedure. (ST for ST 577 )
- 85) D - Mentoplasty is the medical term that refers to plastic surgery of the chin. (ST for ST 746 )
- 86) D - If the patient received preoperative medications prior to signing the surgical informed consent this can be challenged in court. (ST for T 32 )
- 87) B - Moisture hydrates bacteria and spores to reduce their resistance to the gas. (ST for ST 167 )
- 88) B - Polymethyl methacrylate can be used during cranioplasty procedures. (ST for ST 1158 )
- 89) D - The pad should be applied to a fleshy area, preferably over a clean and dry muscle mass. (ST for ST 112 )
- 90) C - Fogarty catheter is used when performing an angioplasty. (ST for ST 286 )
- 91) B - Direct hernia is type of inguinal hernia that presents within Hesselbach's triangle. (ST for ST 422 )

- 92) A - The medial malleolus is part of the tibia. (ST for ST 987 )
- 93) B - Due to the porosity of the material that allows blood to seep through, Dacron® knit polyester grafts require preclotting. (ST for ST 1100 )
- 94) C - The structure that serves as the socket for the head of the femur is the acetabulum, which is formed by the ilium, ischium and pubis. (Anatomy 236)
- 95) D - The ligaments that maintain the position of the uterus are flexible enough to allow the uterus to become malpositioned; retroflexion is a harmless malposition. (Anatomy 870)
- 96) A - The Raney scalp clip is applied to the edges of the incised scalp to control bleeding during cranial procedures. (OR Instr 305)
- 97) D - The ciliary body is located in the anterior portion of the vascular tunic. (Anatomy 705)
- 98) C - Miotics are pupil-constricting agents and pilocarpine hydrochloride is a common miotic used for this purpose. (ST for ST 224 )
- 99) D - No item should ever be retrieved from the sharps container to avoid a sharps accident. (ST for ST 91-92 )
- 100) C - Pulse oximetry is the noninvasive assessment of the oxygen level of the arterial blood using a light absorption technique. (ST for ST 249 )
- 101) D - Femoral shaft fractures in adults are repaired with either compression plating or intramedullary nailing. (B&K 768 )
- 102) C - Van Buren is a type of male urethral dilator that is available in diameters that increase in size. (B&K 742 )
- 103) A - Surgical instruments and other items that will come into contact with the patient's tissues and/or be used within a body cavity are categorized as critical and must be sterile. (ST for ST 141 )
- 104) C - A Harrington retractor is a large, deep retractor and allows for gentle retraction of the liver. (ST for ST 413 )
- 105) C - The division of a reproductive cell into two cells with 23 chromosomes each is called meiosis. (Memmler's 45)
- 106) C - Dys- is a prefix meaning difficult. (Med Term 541)
- 107) B - Upon extubation, the ET is usually replaced with an oropharyngeal airway to lift the tongue forward or nasal airway to lift the soft palate from the back of the oropharynx. (ST for ST 248 )



- 108) C - Topical thrombin aids in speeding up the coagulation cascade. (ST for ST 229 )
- 109) B - Mastectomy means removal of the breast. (Med Term 375)
- 110) C - Choledochojejunostomy is an anastomosis between the common bile duct and jejunum to reestablish flow of bile. (ST for ST no change 468)
- 111) A - In a hip arthroplasty a tourniquet would be unnecessary. (B&K 584-585 )
- 112) B - When prepping for a colostomy reversal procedure, the stoma site is prepped last since it is considered contaminated. (ST for ST 459 )
- 113) A - A carpal tunnel release involves surgically releasing the transverse carpal ligament to relieve pressure on the median nerve. (ST for ST 1186 )
- 114) C - The surgical technologist hands the tag to the circulator who moves around to the left side to prevent the surgical technologist from spinning and possibly contaminating the gown. (ST for ST 339 )
- 115) B - An opening or mouth is an 'os'. (Med Term 534)
- 116) B - The trachea does not assist in amplifying speech. (Physiology 632)
- 117) B - The sudden onset of the appearance of floating spots before the eyes is one of the initial symptoms of a retinal detachment. (ST for ST 611 )
- 118) A - Glutaraldehyde is an agent that is used for disinfection and sterilization purposes. (ST for ST 143 )
- 119) C - Pituitary rongeur, bone drill and nerve hook are all commonly used during a lumbar laminectomy. (ST for ST 1177 )
- 120) B - Nonabsorbable monofilament suture is used for vascular reanastomosis. (ST for ST 301 )
- 121) C - The Frazier suction tip is useful for small incisions and pediatric procedures. (ST for ST 271 )
- 122) A - ATP provides energy for various cellular activities in living systems. (Physiology 62)
- 123) B - An example of a saddle joint is the joint between the trapezium of the carpus and metacarpal of the thumb. (Anatomy 259)
- 124) C - Humidity is maintained at 30-80% within the EtO sterilizer to hydrate the bacteria and spores. (ST for ST 167 )
- 125) B - Isoproterenol hydrochloride (Isuprel) is used to treat ventricular fibrillation that occurs during surgery. (ST for ST 217 )

- 126) C - To prevent contamination of the air in the O.R. from air outside the room, pressure in the O.R. should be positive. (ST for ST 82 )
- 127) A - Povidone-Iodine (commercial name Betadine) is an ideal agent to use for the patient skin prep; however, a patient can be allergic to the solution. (B&K 514 )
- 128) D - The instrument used after intramedullary reaming is a series of rasps from small to large size. (ST for ST 949 )
- 129) B - Electroencephalogram is a display and recording fo the electrical activity of the brain through the placement of electrodes on the scalp. (ST for ST 408 )
- 130) D - The unit of the kidney responsible for removing waste and regulating fluid is the nephron. (Anatomy 828)
- 131) A - Isopropyl alcohol is tuberculocidal, bactericidal, virucidal and fungicidal, but not sporidical. (ST for ST 145 )
- 132) D - In neonates and infants a cutdown approach to the external jugular is preferred for insertion of a central venous catheter. (ST for ST 56 )
- 133) D - To prevent cross contamination and airborne microbes, instruments are placed within a closed case cart to transport. (ST for ST 393 )
- 134) D - There are several type of DeBakey clamps and the DeBakey peripheral vascular clamp is angled with smooth serrations making it ideal for clamping blood vessels without damainging the tissue. (ST for ST 1099 )
- 135) B - The cement restrictor is placed at the end of the reamed femoral canal prior to injecting the bone cement to prevent it from entering the medullary canal. (ST for ST 950 )
- 136) A - Placing the pad on the buttocks should be avoided since uneven and incomplete contact with the skin will most likely occur. (ST for ST 112 )
- 137) B - Most natural absorbable sutures are packaged in an alcohol-water based solution to maintain their pliability. (ST for ST 298 )
- 138) C - When an unconscious patient requires emergency surgery and the family members or guardian cannot be contacted, two consulting physicians must agree that the surgery is needed. (ST for ST 34 )
- 139) D - A radical pelvic procedure performed for highly invasive, persistent carcinoma and only performed if it offers the possibility of a cure is pelvic exenteration. (ST for ST 583 )
- 140) D - Bacter/i refers to bacteria and -cidal means kill/destroy. (ST for ST 140 )

141) C - To prevent rupturing the delicate aneurysm, very little pressure should be placed on the abdomen and the prep should be gently performed. (ST for ST 373 , )

142) B - When the patient is extubated, laryngospasm can occur due to irritation and/or inflammation of the airway by the endotracheal tube. (ST for ST 233 )

143) C - If glucose is not required for ATP production at once, it is mixed with other molecules of glucose to form glycogen, which is then stored in the liver and skeletal muscle fibers, referred to as glycogenesis. (Physiology 190)

144) D - The epiglottis is a large, leaf-shaped piece of cartilage that moves freely over the larynx. (Anatomy 759)

145) D - In the presence of a urethral stricture, the use of a Van Buren dilator may be necessary prior to inserting the catheter. (Alex 500)

146) C - The ventricles are four fluid-filled spaces located in the brain. (Anatomy 617)

147) D - Trigger finger release is the procedure that bupivacaine with epinephrine would be contraindicated. (Pharm 318)

148) B - Someone who carries a pathogen without manifesting symptoms is called a carrier. (Micro 69)

149) C - When the entire bladder is removed (cystectomy) a urinary bladder diversion procedure is required. Ileal conduit is the standard procedure performed after a cystectomy. (ST for ST 848 )

150) A - The recommendation by the WHO is to place the instruments in an impervious container, place in biohazard bag, label "possible CJD" and destroy the instruments. (ST for ST 136 )

151) C - The T-tube, due to its configurations, is best used for placement in the common bile duct for drainage of the biliary system. (ST for ST 287 )

152) D - The pituitary gland is accessed through an incision in the upper gum or nasal cavity and the sphenoid sinus is incised to reach the pituitary gland. (ST for ST 1168 )

153) D - A counted sponge such as a raytec sponge must never be used for passing off and transporting a specimen. (ST for ST 404-406 )

154) C - A bladder retractor is often used to aid in visualization of the interior of the bladder during the procedure. (ST for ST 864 )

155) D - A tumescent solution is used in the suction lipectomy procedure. (ST for ST 798 )

- 156) C - The Whistle is a type of non-retaining catheter used to obtain urine specimen or decompress the bladder. (ST for ST 285 )
- 157) C - The vagina is a tubular, fibromuscular organ lined with mucous membrane. (Anatomy 871)
- 158) C - Sodium bicarbonate is used to correct metabolic acidosis during cardiac arrest. (ST for ST 221 )
- 159) B - Compound or open fracture would have a wound classification as contaminated. (ST for ST 290 )
- 160) A - Methylene blue is used intravenously to verify patency of the fallopian tubes. (Pharm 157)
- 161) C - Pneumoperitoneum is established to provide a working space in the abdomen and allow the intestines to fall away from the anterior of the abdominal cavity to prevent perforation by the trocars upon insertion. (B&K no change 643)
- 162) D - The pressure for a steam sterilizer set at 250°F must be 15 - 17 with a minimum exposure of 15 minutes. (ST for ST 164 )
- 163) B - Bipolar electrosurgery is the most commonly used method of thermal hemostasis in cranial surgery; cottonoid strips and bone wax are frequently used non-thermal methods of hemostasis. (ST for ST 113 )
- 164) D - A wrapped instrument set placed in a steam prevacuum sterilizer at 270° F must be exposed to that temperature for a minimum of 4 minutes. (ST for ST 161 )
- 165) B - Pulmonary embolism is a primary cause of death intra-and postoperatively. (B&K 610)
- 166) A - Polypropylene is used frequently in vascular procedures. (ST for ST 301 )
- 167) B - Anaerobic means without oxygen. (Micro 26)
- 168) D - To prevent foot drop, the peroneal nerve should be padded since it rests on the stirrups in the lithotomy position. (ST fr ST 366 )
- 169) B - A primary characteristic of Graves' disease is hyperthyroidism. Other symptoms include weight loss, fatigue, palpitations, increased metabolic rate, and exophthalmos. (Memmler's 266)
- 170) C - The Foley indwelling catheter drainage bag should be positioned lower than the level of the bladder. (ST for ST 286 )
- 171) A - The sutures of the skull are examples of synarthroses. (Anatomy 251)

172) D - Laminar air flow is a high-flow unidirectional, air-blowing ventilation system. (ST for ST 82 )

173) A - Ketone bodies are produced through the catabolism of fats. (Physiology 463)

174) D - The principal reason for performing pre-operative skin prep is to remove transient flora and reduce resident flora. (ST for ST 371 )

175) D - The hypothalamus detects changes in temperature and triggers heat-conserving and generating activities, or activities that promote the loss of heat. (ST for ST 249 )