Certified Surgical Technologist (CST) Practice Exam (Sample)

Study Guide

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Questions

1. **What is the minimum Fahrenheit temperature required for sterilization in a prevacuum steam sterilizer?**

   A. 249-255

   B. 263-269

   C. 270-276

   D. 256-262

2. **Which procedure is indicated for the excision of an ovarian cyst?**

   A. Laparoscopy

   B. Colonoscopy

   C. Hysterectomy

   D. Cholecystectomy

3. **What is another name for the electrosurgical unit's patient return electrode?**

   A. Cautery

   B. Generator

   C. Foot pedal

   D. Grounding pad

4. **When repairing a direct hernia, the surgeon works within which anatomical triangle?**

   A. Femoral

   B. Anterior

   C. Hesselbach's

   D. Calot's

5. **To which portion of the colon is the appendix attached?**

   A. Ascending

   B. Cecum

   C. Descending

   D. Sigmoid

6. Which of the following instruments creates the trough on the anterior glenoid rim during a Bankart procedure?

A. Periosteal elevator

B. Bone cutting forceps

C. Shaver with abrader tip

D. Reciprocating saw

7. Which of the following is a type of passive drain?

A. Penrose

B. Hemovac

C. Jackson Pratt

D. Pleur evac

8. What is the location of a Baker's cyst?

A. Olecranon process

B. Greater tubercle

C. Popliteal fossa

D. Carpal tunnel

9. What is typically used to create a pneumoperitoneum during laparoscopic surgery?

A. Carbon dioxide

B. Oxygen

C. Nitrous oxide

D. Argon gas

10. Which organism is known to cause gas gangrene?

A. Clostridium botulinum

B. Clostridium perfringens

C. Staphylococcus aureus

D. Staphylococcus epidermidis

Answers

1. C
2. A
3. D
4. C
5. B
6. C
7. A
8. C
9. A
10. B

Explanations

1. What is the minimum Fahrenheit temperature required for sterilization in a prevacuum steam sterilizer?

A. 249-255

B. 263-269

C. 270-276

D. 256-262

The correct answer indicates that the minimum Fahrenheit temperature required for sterilization in a prevacuum steam sterilizer is between 270-276 degrees. This temperature range is critical because it ensures that all microorganisms, including bacterial spores, are effectively killed during the sterilization process. Prevacuum steam sterilizers operate by removing air from the chamber before introducing steam. This action enhances the penetration of steam and decreases the time required for sterilization. At temperatures of 270 degrees Fahrenheit and above, the steam's energy is sufficient to achieve the necessary lethality to ensure that all standard forms of microbial life are eradicated, which is crucial for maintaining the sterility of surgical instruments and other medical equipment. Other temperature ranges, while still relevant to sterilization processes, do not guarantee the same level of efficacy. Therefore, understanding the minimum heat threshold is essential for ensuring that sterilization protocols meet safety and effectiveness standards in surgical and medical settings.

2. Which procedure is indicated for the excision of an ovarian cyst?

A. Laparoscopy

B. Colonoscopy

C. Hysterectomy

D. Cholecystectomy

The procedure indicated for the excision of an ovarian cyst is laparoscopy. This minimally invasive surgical technique allows surgeons to access the abdominal cavity through small incisions, using a camera and specialized instruments. Laparoscopy is preferred for excising ovarian cysts because it promotes faster recovery, less postoperative pain, and reduced scarring compared to open surgery. Laparoscopy can also facilitate the examination of surrounding structures and assist in the diagnosis of any other potential issues within the pelvic area, all while minimizing trauma to the body. This makes it an ideal choice for such procedures compared to other options that do not directly address ovarian issues. Other procedures listed, such as colonoscopy, hysterectomy, and cholecystectomy, target different organs or conditions. Colonoscopy focuses on the colon, hysterectomy involves removing the uterus, and cholecystectomy is specific to gallbladder removal. Therefore, they are not suitable choices for excising an ovarian cyst.

3. What is another name for the electrosurgical unit's patient return electrode?

A. Cautery

B. Generator

C. Foot pedal

D. Grounding pad

The patient return electrode in an electrosurgical unit is known as the grounding pad. This component is pivotal in the electrosurgical process as it serves to complete the electrical circuit during surgical procedures that utilize electrical current to cut or coagulate tissue. The grounding pad is placed on the patient's skin away from the surgical site, allowing the electrical current to return safely back to the electrosurgical generator. This is crucial for patient safety; if the grounding pad isn't applied properly or is not functioning, it could result in burns or other injuries due to electrical current concentration in certain areas. The grounding pad, therefore, ensures that the electrosurgical unit operates effectively and safely by providing a pathway for the current to return to the generator without causing harm to the patient. The other options, such as cautery, generator, and foot pedal, refer to different components or functions within the electrosurgical system but do not describe the patient return electrode specifically. Cautery generally pertains to the process of burning tissue to achieve hemostasis, the generator is the machine that produces the electrical energy, and the foot pedal is used to activate the generator, not to return the current from the patient.

4. When repairing a direct hernia, the surgeon works within which anatomical triangle?

A. Femoral

B. Anterior

C. Hesselbach's

D. Calot's

When repairing a direct hernia, the surgical approach focuses on the anatomical area known as Hesselbach's triangle. This triangle, also referred to as the inguinal or abdominal wall triangle, is significant in hernia repair because it is the region where direct hernias typically occur due to a weakness in the abdominal wall. Hesselbach's triangle is bordered by the inferior epigastric vessels, the lateral border of the rectus abdominis muscle, and the inguinal ligament. A direct hernia occurs when abdominal contents protrude through this weak area rather than following the inguinal canal, which would be characteristic of an indirect hernia. Understanding the anatomy of Hesselbach's triangle is crucial for surgical technicians and surgeons as it helps guide the surgical technique and ensures that appropriate structures are recognized and preserved during hernia repair procedures. This knowledge aids in minimizing complications and improving patient outcomes.

5. To which portion of the colon is the appendix attached?

A. Ascending

B. Cecum

C. Descending

D. Sigmoid

The appendix is attached to the cecum, which is the first part of the large intestine. This anatomical relationship is significant because the cecum serves as the entry point for materials from the small intestine into the colon. The cecum is located in the lower right quadrant of the abdomen, and the appendix extends off of it as a small, tubular structure. Understanding this connection is important for surgical technologists, as procedures involving the appendix, such as an appendectomy, typically start with the cecum in view. Knowledge of gastrointestinal anatomy, including the specific orientation and relationship of the appendix to the cecum, is essential for supporting surgical teams and ensuring proper patient management.

6. Which of the following instruments creates the trough on the anterior glenoid rim during a Bankart procedure?

A. Periosteal elevator

B. Bone cutting forceps

C. Shaver with abrader tip

D. Reciprocating saw

The shaver with abrader tip is used to create the trough on the anterior glenoid rim during a Bankart procedure because its design allows for precise and controlled resection of bone and soft tissue. The shaver's abrader tip effectively removes the thin layer of bone while minimizing damage to the surrounding structures, which is crucial in this procedure aimed at repairing a Bankart lesion associated with shoulder instability. In a Bankart repair, the creation of a well-defined trough is essential for proper engagement of the surgical anchors that will later hold the labrum and glenoid together. The shaver with abrader tip is specifically designed to handle such delicate tasks where control and precision are paramount, making it the ideal choice for this step in the surgical procedure. Other instruments, while useful in various surgical contexts, do not perform this specific function as effectively. For instance, a periosteal elevator is geared more towards dissecting soft tissue and lifting periosteum rather than creating bone cavities. Bone cutting forceps are typically utilized for cutting through denser structures and not for detailed surface modifications on the bone. The reciprocating saw, while effective for larger cuts or in more extensive bone surgeries, is too aggressive for the delicate work required on the anterior glenoid rim

7. Which of the following is a type of passive drain?

A. Penrose

B. Hemovac

C. Jackson Pratt

D. Pleur evac

A Penrose drain is classified as a type of passive drain. It functions by allowing fluid to flow out of a wound through gravity and capillary action. The Penrose drain is a soft and flexible tube, which is typically placed within a wound or surgical site to prevent fluid accumulation. It relies on the surrounding tissue and gravity to facilitate the drainage process, without any negative pressure suction. In contrast, the other options listed are examples of active or closed drainage systems that utilize suction to remove fluids. The Hemovac and Jackson Pratt drains employ a vacuum mechanism to actively draw fluids out of a surgical site, providing a controlled method of drainage. The Pleur evac is specifically designed for thoracic drainage and operates similarly by using suction to evacuate air or fluid from the pleural space. Understanding the differences between these types of drains is essential for proper surgical wound management.

8. What is the location of a Baker's cyst?

A. Olecranon process

B. Greater tubercle

C. Popliteal fossa

D. Carpal tunnel

A Baker's cyst, also known as a popliteal cyst, is located in the popliteal fossa, which is the area behind the knee. This cyst is formed when excess joint fluid accumulates in this space, often due to conditions like arthritis or other knee joint issues. The popliteal fossa serves as a conduit for important structures such as nerves, blood vessels, and tendons, making it a critical area for the development of such a cyst. Recognizing the location of a Baker's cyst is essential for diagnosis and management, as it can sometimes cause discomfort or limit range of motion in the knee. Understanding the anatomy of the knee and surrounding structures aids in the identification and treatment of various conditions, including Baker's cysts.

9. What is typically used to create a pneumoperitoneum during laparoscopic surgery?

A. Carbon dioxide

B. Oxygen

C. Nitrous oxide

D. Argon gas

The creation of a pneumoperitoneum during laparoscopic surgery is primarily achieved using carbon dioxide. This gas is preferred because it is readily absorbed by the body and is not toxic, which makes it safe for use in the abdominal cavity. Once introduced, carbon dioxide expands the peritoneal cavity, allowing the surgeon to have a clear view and access to the organs without direct interference. Carbon dioxide also helps to improve the safety of the procedure – as it is non-flammable, it minimizes the risk of combustion, which is a concern in surgeries involving electrical cautery or lasers. Furthermore, the physiologic effects of carbon dioxide, such as rapid absorption and excretion through respiration, mean that patients do not experience prolonged gas retention, which can lead to complications. While other gases like oxygen, nitrous oxide, and argon gas may be used in various medical applications, they are not suitable for creating a pneumoperitoneum. Oxygen can support combustion, nitrous oxide is often used as an anesthetic, and argon gas, although inert, is not typically selected for this purpose due to its lack of absorption properties and potential for increased intra-abdominal pressure issues. Thus, carbon dioxide remains the standard choice for achieving pneumoperitoneum in laparoscopic

10. Which organism is known to cause gas gangrene?

A. Clostridium botulinum

B. Clostridium perfringens

C. Staphylococcus aureus

D. Staphylococcus epidermidis

Gas gangrene is primarily caused by the organism Clostridium perfringens, which is an anaerobic, spore-forming bacterium. This pathogen produces potent toxins that contribute to tissue necrosis and the characteristic gas formation associated with gas gangrene. Infections typically arise in wounds that are contaminated with dirt, especially those that involve damaged tissue lacking sufficient oxygen, as Clostridium perfringens thrives in low-oxygen environments. The other organisms listed, while they are significant in various infections, are not associated with gas gangrene. Clostridium botulinum is notorious for botulism, a serious illness that affects the nervous system, while Staphylococcus aureus and Staphylococcus epidermidis are primarily known for skin and soft tissue infections, as well as other types of bacterial infections, but do not cause gas gangrene. Thus, understanding that Clostridium perfringens is specifically linked to this severe condition helps clarify its role in surgical infection management and the corresponding precautions that should be taken in the operating room.