

B. Sc. MEDICAL TECHNOLOGY (OPERATION THEATRE) (BOT)
SEMESTER -IV EXAMINATION, JUNE-2026

(BOT402) BASIC CONCEPTS OF ALLIED SURGERIES

[Time allotted: Three Hours]

[Max Marks: 100]

Note: Read all the instructions carefully

Answer all questions in serial order. Draw suitable diagrams wherever necessary

Q. 1. Objective type questions: (Attempt All)**(10 x 02 = 20)**

(Very short/ short answer/ MCQ/ One liners/ Fill in the blanks/ True/False)

- a. What solution is commonly used to preserve tissue specimens for pathological analysis? (CO5)
- b. What ergonomic practice is essential for a surgeon to avoid strain during lengthy procedures? (CO1)
- c. What is the first step in cleaning an endoscope after a procedure? (CO 2)
- d. What is the most important step to perform before starting a minor OT procedure? (CO1)
 - i. Sterilize the surgical instruments
 - ii. Confirm patient identity and consent
 - iii. Administer general anesthesia
 - iv. Prepare post-operative medications
- e. Which local anesthetic is commonly used for minor surgical procedures due to its rapid onset and intermediate duration of action? (CO 1)
 - i. Lidocaine
 - ii. Bupivacaine
 - iii. Procaine
 - iv. Ropivacaine
- f. During laparoscopic surgery, pneumoperitoneum is created by insufflating which gas into the abdominal cavity? (CO 2)
 - i. Oxygen
 - ii. Carbon dioxide
 - iii. Nitrogen
 - iv. Helium
- g. Which type of surgical dressing is most appropriate for a wound that is draining heavily? (CO 2)
 - i. Transparent film dressing
 - ii. Hydrocolloid dressing
 - iii. Gauze dressing
 - iv. Foam dressing
- h. What is the appropriate method for disposing of human tissue after surgery? (CO 5)
 - i. Flush it down the drain
 - ii. Place it in a biohazard bag and incinerate
 - iii. Store it in a refrigerator for a week
 - iv. Discard it with regular waste
- i. Which of the following is a common side effect of local anesthesia? (CO 1)
 - i. Hypertension
 - ii. Respiratory depression
 - iii. Localized numbness
 - iv. Deep vein thrombosis
- j. Which regulation must be followed when disposing of human tissue after surgery? (CO 5)
 - i. Dispose of it with regular household waste
 - ii. Follow local biohazard waste disposal protocols
 - iii. Flush it down the sink
 - iv. Bury it in the hospital garden

Q. 2. Short notes/ Short answer type questions (Attempt any Five)**(05 x 04 = 20)**

- a. Write a short note on the proper techniques for handling and preserving surgical specimens for pathological examination. Include key steps and considerations. 402.1 (PO 5)
- b. Describe the different types of surgical dressings available and their appropriate use in wound management. Highlight the selection criteria for different wound types. 402.1(PO 5)
- c. Explain the concept of pneumoperitoneum in laparoscopic surgery. Discuss the methods of creating pneumoperitoneum and the importance of using carbon dioxide. 402.1 (PO 1)
- d. Outline the essential steps involved in the cleaning and maintenance of endoscopic instruments after a procedure. Discuss the importance of each step in ensuring the longevity and safety of the instruments. 402.5(PO2)
- e. Discuss the indications, techniques, and potential complications of administering local anesthesia in minor surgical procedures. 402.1(PO 1)
- f. Explain the different types of waste generated in an operating theater and the proper methods for their disposal according to safety and environmental regulations. 402.5(PO 5)
- g. Describe the importance of proper patient positioning on the OT table during surgery. 402.3(PO 3)

P.T.O....

Q. 3. Structured questions (Attempt any Three)**(03 x 10 = 30)**

- a. You are preparing for a plastic surgery procedure in the operating room. The patient requires a skin graft for a large wound on their arm. Address the following
- i. How would you position the patient on the operating table to ensure optimal access to the wound area and patient safety? 402.3 (PO1, 2)
 - ii. What steps would you take to prepare and handle the skin graft before applying it to the wound? 402.1(PO1)
 - iii. After the procedure, what are the key points you need to monitor during the post-operative care to ensure proper healing and prevent complications? 402.1 (PO6)
- b. You are assisting in a pediatric surgery for a young child who requires an inguinal hernia repair. Address the following aspects:
- i. How would you position the child on the operating table to ensure both safety and optimal access for the surgeon? 402.3 (PO1, 2)
 - ii. What special considerations should you keep in mind when preparing and handling surgical instruments for a pediatric patient? 402.2(PO 2)
 - iii. After the surgery, what are the important aspects of post-operative care specific to pediatric patients that you need to monitor and manage? 401.1 (PO1, 2)
- c. You are assisting in a combined ophthalmic and ENT surgical procedure involving a patient who needs both cataract surgery and sinus surgery. Address the following aspects:
- i. What specific measures would you take to ensure the operating room environment is prepared for both ophthalmic and ENT procedures? 402.2 (PO 4)
 - ii. What are the key steps in preparing and managing the sterile field for both the ophthalmic and ENT components of the surgery? 402.2(PO 2)
 - iii. What are the common challenges and considerations you should be aware of when transitioning between ophthalmic and ENT procedures during the surgery? 402.1(PO1,2)
- d. i. How should you prepare the operating room to accommodate both the patient and the surgical team for a gynecological procedure 402.2(PO 4)
- ii. What are the essential steps for ensuring proper aseptic technique and sterile field setup for an obstetric procedure such as a cesarean section? 402.2(PO1, 2)
- iii. What are the common post-operative complications to watch for in patients after major gynecological surgery, and what measures should be taken to address them? 402.1 (PO1, 2)

Q. 4. Long Answer/ Essay type questions (Attempt any Two)**(02 x 15 = 30)**

- a. i. You are tasked with setting up the operating room for a complex brain surgery. What specialized equipment and preparations are required to address the unique needs of neurosurgery, and how should the room be arranged to support the surgical team effectively? 402.1, 402.2(PO 1,2)
- ii. During a neurosurgical procedure, unexpected bleeding occurs. How should you, as part of the OT team, respond to manage the situation efficiently while maintaining sterile conditions and supporting the surgical team's efforts? 402.1 (PO1, 2)
- b. i. What is the standard positioning for a patient undergoing hip replacement surgery, and why is this position important? 402.3(PO 3,4)
- ii. List two essential instruments commonly used in orthopedic procedures and briefly describe their functions. 402.2 (PO1, 2)
- c. i. What are the specific preparations needed in the operating room to ensure a successful cardiothoracic procedure, such as a heart bypass surgery? 402.2(PO 1,2)
- ii. How do you assist with the setup and monitoring of the heart-lung machine during the surgery, and why is this equipment crucial for the procedure? 402.2(PO 1,2)