



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(OTT)-2021/B.Sc.(OTT)-2022

Course Name – Basic Intensive Care

Course Code - BOTTC504

(Semester V)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) identify the ventilator parameter represents the amount of air delivered with each breath?
 - a) Rate
 - b) FiO_2
 - c) Tidal volume
 - d) PEEP
- (ii) Select the ventilator mode is commonly used in the treatment of obstructive sleep apnea.
 - a) Pressure support ventilation
 - b) SIMV
 - c) Bi-level positive airway pressure (BiPAP)
 - d) Assist-control ventilation
- (iii) Name the position a patient should be placed to optimize oxygenation for a non-intubated, unconscious patient?
 - a) Trendelenburg position
 - b) Prone position
 - c) High Fowler's position
 - d) Supine position
- (iv) Tell the primary goal of using oxygen therapy for patients with pneumonia?
 - a) To increase oxygen saturation
 - b) To increase respiratory rate
 - c) To reduce the risk of hypoxemia
 - d) To prevent the development of hypertension
- (v) Select which mode of oxygen therapy provides positive pressure ventilation during inhalation only?
 - a) Continuous positive airway pressure (CPAP)
 - b) Bi-level positive airway pressure (BiPAP)
 - c) Non-Rebreather Mask
 - d) High Flow Nasal Cannula
- (vi) Identify a potential complication of hemofiltration.
 - a) Improved kidney function
 - b) Overhydration
 - c) Clotting of the hemofilter
 - d) Increased blood pressure

- (vii) Trace the most suitable candidate for continuous renal replacement therapy (CRRT) with hemofiltration.
- a) A patient with mild dehydration
 - b) A patient with chronic kidney disease who is not on dialysis
 - c) A patient with acute kidney injury and severe hemodynamic instability
 - d) A patient with a stable hemodynamic status
- (viii) Predict which electrolyte imbalance can lead to T wave changes on an ECG.
- a) Hyponatremia
 - b) Hypocalcemia
 - c) Hyperkalemia
 - d) Hyperkalemia
- (ix) choose the primary purpose of a pulse oximeter in respiratory monitoring.
- a) Record respiratory rate
 - b) Assess oxygen saturation
 - c) Monitor heart rate
 - d) Measure blood pressure
- (x) Identify the condition characterized by a sudden blockage in one of the pulmonary arteries:
- a) Pneumonia
 - b) Asthma
 - c) Pulmonary embolism
 - d) Tuberculosis
- (xi) Choose the parameter is commonly measured to determine a patient's forced expiratory volume in one second (FEV1) during spirometry?
- a) Arterial blood pH
 - b) Volume of air exhaled in one second
 - c) Maximum heart rate
 - d) Maximum breath-hold time
- (xii) Identify the lung volume that represents the amount of air inhaled and exhaled during normal, quiet breathing:
- a) Residual volume
 - b) Expiratory reserve volume
 - c) Inspiratory reserve volume
 - d) Tidal volume
- (xiii) Identify the lung volume that represents the amount of air that can be forcefully inhaled after a normal inhalation?
- a) Expiratory reserve volume
 - b) Inspiratory reserve volume
 - c) Tidal volume
 - d) Expiratory reserve volume
- (xiv) Choose the correct answer-Total lung capacity (TLC) is the sum of:
- a) Inspiratory reserve volume and residual volume
 - b) Inspiratory reserve volume and expiratory reserve volume
 - c) Tidal volume, inspiratory reserve volume, and expiratory reserve volume
 - d) Tidal volume and inspiratory reserve volume
- (xv) Identify the function of the exhalation valve in a bag valve mask assembly?
- a) Connects the bag to the oxygen source
 - b) Allows air to flow from the bag to the patient
 - c) Delivers positive pressure to the patient
 - d) Prevents exhaled air from returning to the mask

Group-B

(Short Answer Type Questions)

3 x 5=15

- 2. State the safety precautions should a healthcare professional take when performing sterilization and disinfection of ventilators? (3)
- 3. Explain hyperalimentation, and its indications. (3)
- 4. Explain the process of TPN administration, including the route of administration, sterile technique, and infusion methods. (3)
- 5. Illustrate the potential complications associated with long-term oxygen therapy. (3)

6. Write the principles of positioning and skin care for unconscious adult patients to prevent pressure ulcers, contractures, and other complications related to immobility. (3)

OR

Write the common psychological challenges faced by patients during hospitalization? (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Explain how does a hemofiltration impact hemodynamic stability and fluid balance in critically ill patients? (5)
8. Write the significance of tidal volume in mechanical ventilation. (5)
9. Summarize the working principles of positive end-expiratory pressure (PEEP). What are its effects on lung mechanics and oxygenation? (5)
10. Write the clinical significance of bicarbonate (HCO_3^-) levels in blood gas analysis. (5)
11. Discuss the significance of pCO_2 and its role in assessing oxygenation status in patients. (5)
12. Summarize how volume-cycled ventilators work. (5)

OR

justify advantages and limitations of volume-cycled ventilation? (5)

LIBRARY
Brainware University
Barasat, Kolkata -700125