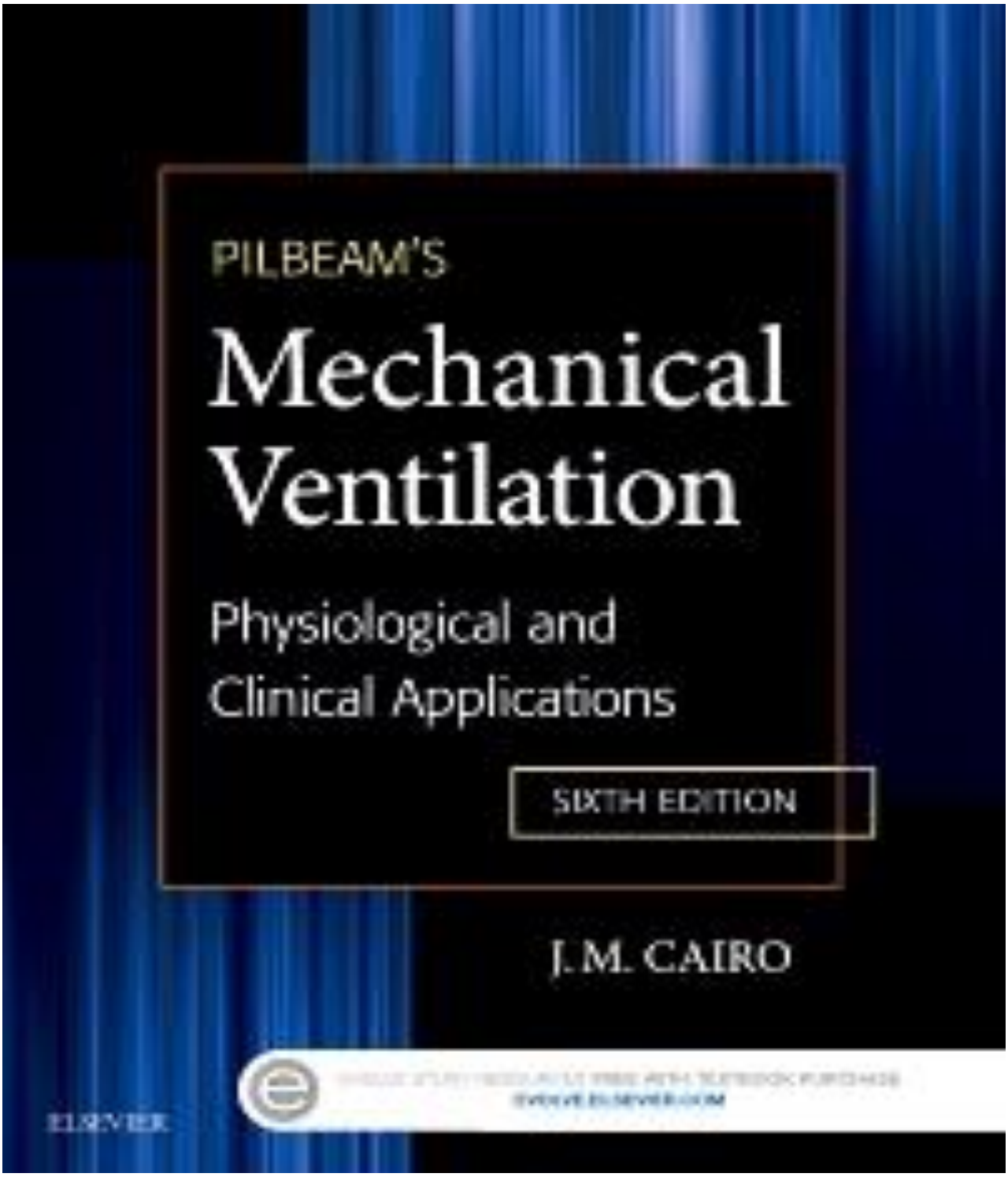
TEST BANK


PILBEAM'S
Mechanical Ventilation
Physiological and Clinical Applications
SIXTH EDITION
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ELSEVIER

TEST BANK FOR PILBEAM'S MECHANICAL VENTILATION: PHYSIOLOGICAL AND CLINICAL APPLICATIONS 6TH EDITION BY J.M. CAIRO

This evidence-based test bank walks readers through the most fundamental and advanced concepts surrounding mechanical ventilation and guides them in properly applying these principles to patient care. This edition features a completely revised chapter on ventilator graphics, additional case studies and clinical scenarios, plus all the reader-friendly features that promote critical thinking and clinical application — like key points, AARC clinical practice guidelines, and critical care concepts — that have helped make this test bank a household name among respiratory care professionals.

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Chapter 1: Oxygenation and Acid-Base Evaluation Test Bank

MULTIPLE CHOICE

1. The structure that is responsible for returning oxygenated blood to the heart is the
   a. Pulmonary artery.
   b. Pulmonary vein.
   c. Superior vena cava.
   d. Inferior vena cava.

   ANS: B
   The pulmonary vein carries oxygenated blood to the heart. The pulmonary artery carries deoxygenated blood from the heart to the lungs. Both venae cavae return blood to the right atrium of the heart.

   DIF: Remember REF: 823-824
   OBJ: Describe the structure and function of the cardiopulmonary system.
   TOP: Planning MSC: Physiological Integrity

2. Chemical receptors that stimulate inspiration are located in the
   a. Brain.
   b. Lungs.
   c. Aorta.
   d. Heart.

   ANS: C
   Chemical receptors in the aorta send signals to begin the inspiration process. The brain, lungs, and heart all are affected by this chemical reaction.

   DIF: Remember REF: 822
   OBJ: State the process of the neural and chemical regulation of respiration.
   TOP: Planning MSC: Physiological Integrity

3. The nurse knows that the primary function of the alveoli is to
   a. Carry out gas exchange.
   b. Store oxygen.
   c. Regulate tidal volume.
   d. Produce hemoglobin.

   ANS: A
   The alveolus is a capillary membrane that allows gas exchange of oxygen and carbon dioxide during respiration. The alveoli do not store oxygen, regulate tidal volume, or produce hemoglobin.

   DIF: Remember REF: 822
   OBJ: Describe the structure and function of the cardiopulmonary system.
   TOP: Knowledge MSC: Physiological Integrity

4. The nurse knows that anemia will result in
   a. Hypoxemia.

b. Impaired ventilation.
c. Hypovolemia.
d. Decreased lung compliance.

ANS: A
Patients who are anemic do not have the same level of oxygen-carrying capacity. As a result, oxygen is unable to properly perfuse the tissues, resulting in hypoxemia. Impaired ventilation occurs when oxygen/carbon dioxide exchange occurs at the alveolar level. Hypovolemia is related to decreased circulating blood volume. Lung compliance is related to the elasticity of the lung tissue.

DIF: Understand REF: 822-823
OBJ: Identify the clinical outcomes occurring as a result of disturbances in conduction, altered cardiac output, impaired valvular function, myocardial ischemia, and impaired tissue perfusion.
TOP: Assessment MSC: Physiological Integrity

5. The process of exchanging gases through the alveolar capillary membrane is known as
a. Disassociation.
b. Diffusion.
c. Perfusion.
d. Ventilation.

ANS: B
Diffusion is the process of gases exchanging across the alveoli and capillaries of body tissues. Disassociation is not related to oxygenation. Perfusion is the ability of the cardiovascular system to carry oxygenated blood to tissues and return deoxygenated blood to the heart. Ventilation is the process of moving gases into and out of the lungs.

DIF: Remember REF: 822
OBJ: Describe the physiological processes of ventilation, perfusion, and exchange of respiratory gases. TOP: Assessment MSC: Physiological Integrity

6. A nurse caring for a patient who was in a motor vehicle accident that resulted in trauma to C4 would expect to find
a. Decreased tidal volumes.
b. Increased perfusion.
c. Increased use of accessory muscles.
d. Decreased hemoglobin.

ANS: A
A C4 injury would result in damage to the phrenic nerve and would cause a decrease in inspiratory lung expansion. Accessory muscles will also be damaged by a C4 injury. The patient may exhibit decreased perfusion and increased hemoglobin to compensate for hypoxemia.

DIF: Understand REF: 822
OBJ: State the process of the neural and chemical regulation of respiration.
TOP: Assessment MSC: Physiological Integrity

7. The nurse would expect to see increased ventilations if a patient exhibits
a. Increased oxygen saturation.
b. Decreased carbon dioxide levels.

c. Decreased pH.
d. Increased hemoglobin levels.

ANS: C
Retained CO_2 creates H^+ byproducts that lower pH. This sends a chemical signal to increase respiratory rate and would result in increased ventilation. All other options would cause the ventilation rate to normalize or decrease to increase carbon dioxide retention or as the result of delivery of higher levels of oxygen to tissues.

DIF: Understand REF: 823-825
OBJ: State the process of the neural and chemical regulation of respiration.
TOP: Assessment MSC: Physiological Integrity

8. The nurse recommends that a patient install a carbon monoxide detector in the home because
a. It is required by law.
b. Carbon monoxide tightly bonds to hemoglobin, causing hypoxia.
c. Carbon monoxide signals the cerebral cortex to cease ventilations.
d. Carbon monoxide combines with oxygen in the body and produces a deadly toxin.

ANS: B
Carbon monoxide has a higher affinity for hemoglobin; therefore, oxygen is not able to bond to hemoglobin and be transported to tissues. A carbon monoxide detector is not required by law, does not signal the cerebral cortex to cease ventilations, and does not combine with oxygen but with hemoglobin to produce a toxin.

DIF: Remember REF: 826
OBJ: Describe nursing care interventions used to promote oxygenation in the primary care, acute care, and restorative and continuing care settings. TOP: Planning
MSC: Physiological Integrity

9. While performing an assessment, the nurse hears crackles in the patient's lung fields. The nurse also learns that the patient is sleeping on three pillows. What do these symptoms most likely indicate?
a. Left-sided heart failure
b. Right-sided heart failure
c. Atrial fibrillation
d. Myocardial ischemia

ANS: A
Left-sided heart failure results in pulmonary congestion, the signs and symptoms of which include shortness of breath, crackles, and discomfort when lying supine. Right-sided heart failure is systemic and results in peripheral edema and hepatojugular distention. Atrial fibrillation results in an irregular heart rate. Myocardial ischemia most often results in chest pain, along with shortness of breath, nausea, and fatigue.

DIF: Understand REF: 828-830
OBJ: Assess for the physical manifestations that occur with alterations in oxygenation.
TOP: Assessment MSC: Physiological Integrity

10. The nurse knows that a myocardial infarction is an occlusion of what blood vessel?
a. Pulmonary artery
b. Ascending aorta

c. Coronary artery
d. Carotid artery

ANS: C
A myocardial infarction is the lack of blood flow due to obstruction to the coronary artery, which supplies the heart with blood. The ascending aorta is a vessel that leads from the heart to perfuse the brain. The pulmonary artery supplies blood to the lungs. The carotid artery supplies blood to the brain.

DIF: Remember REF: 824
OBJ: Differentiate among the physiological processes of cardiac output, myocardial blood flow, and coronary artery circulation. TOP: Assessment MSC: Physiological Integrity

11. Myocardial blood flow is unidirectional; the nurse knows that the correct pathway is which of the following?
a. Right atrium, right ventricle, left ventricle, left atrium
b. Right atrium, left atrium, right ventricle, left ventricle
c. Right atrium, right ventricle, left atrium, left ventricle
d. Right atrium, left atrium, left ventricle, right ventricle

ANS: C
Unoxygenated blood flows through the venae cavae into the right atrium, where it is pumped down to the right ventricle; the blood is then pumped out the pulmonary artery and is returned oxygenated via the pulmonary vein to the left atrium, where it flows to the left ventricle and is pumped out to the rest of the body via the aorta.

DIF: Remember REF: 824
OBJ: Describe the structure and function of the cardiopulmonary system.
TOP: Pathology MSC: Physiological Integrity

12. The nurse caring for a patient with ischemia to the left coronary artery would expect to find
a. Increased ventricular diastole.
b. Increased stroke volume.
c. Decreased preload.
d. Decreased afterload.

ANS: D
The left coronary artery supplies the muscles of the left ventricle; the strength of the muscle affects the contractility of the heart. The other options are not impacted by the muscles of the left ventricle.

DIF: Understand REF: 824
OBJ: Differentiate among the physiological processes of cardiac output, myocardial blood flow, and coronary artery circulation. TOP: Assessment MSC: Physiological Integrity

13. Normal cardiac output is 4 to 6 L/min in a healthy adult at rest. Which of the following is the correct formula to calculate cardiac output?
a. Stroke volume ☐ Heart rate
b. Stroke volume/Body surface area
c. Body surface area ☐ Cardiac index
d. Heart rate/Stroke volume