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39	A	B	C	D	E

PRACTICE QUESTIONS

Saudi Commission for Health Specialties (SCFHS)

ICU

Intensive Care

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for Saudi Commission for Health Specialties (SCFHS) ICU, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, ICU
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1 SINGLE CHOICE

A 60-year-old patient in the ICU develops sudden hypotension, muffled heart sounds, and jugular venous distension following insertion of a central venous catheter. What is the most likely diagnosis?

- ☐ A Tension pneumothorax
- ☒ B Cardiac tamponade
- ☐ C Pulmonary embolism
- ☐ D Acute myocardial infarction

ANSWER B

WHY The triad of hypotension, muffled heart sounds, and JVD (Beck's triad) following a central line insertion is highly suggestive of cardiac tamponade, likely due to catheter-induced perforation of the right atrium or ventricle. Tension pneumothorax typically presents with unilateral decreased breath sounds and tracheal deviation. PE presents with sudden hypoxemia and tachycardia, and acute MI presents with chest pain and ECG changes.

QUESTION 2 SINGLE CHOICE

An intubated patient on volume-controlled ventilation shows a sudden rise in peak airway pressure with no change in plateau pressure, a normal SpO₂, and unilateral absent breath sounds on the right. What is the most likely cause?

- ☐ A Acute Respiratory Distress Syndrome (ARDS)
- ☐ B Acute bronchospasm
- ☒ C Right mainstem bronchus intubation with endotracheal tube migration
- ☐ D Pulmonary edema

ANSWER C

WHY Rising peak pressure with stable plateau pressure indicates increased airway resistance rather than decreased compliance, and unilateral absent breath sounds strongly suggests the endotracheal tube has migrated into the right mainstem bronchus. ARDS and pulmonary edema would increase both peak and plateau pressures, while bronchospasm typically produces bilateral wheezing.

QUESTION 3 SINGLE CHOICE

According to the Surviving Sepsis Campaign guidelines, what is the recommended target for mean arterial pressure (MAP) in patients with septic shock requiring vasopressors?

- ☐ A MAP $\geq$ 55 mmHg
- ☐ B MAP $\geq$ 60 mmHg
- ☒ C MAP $\geq$ 65 mmHg
- ☐ D MAP $\geq$ 70 mmHg

ANSWER C

WHY The Surviving Sepsis Campaign international guidelines recommend a target MAP of $\geq$ 65 mmHg in patients with septic shock. This value balances adequate tissue perfusion with the risks of excessive vasoconstriction and is supported by evidence from landmark trials such as the SEPSISPAM study.

QUESTION 4 SINGLE CHOICE

A patient with severe ARDS (PaO₂/FiO₂ ratio of 90) remains hypoxemic despite optimal low tidal volume ventilation and prone positioning. What is the next appropriate intervention?

- ☐ A Inhaled nitric oxide
- ☐ B High-dose corticosteroids
- ☒ C Muscle paralysis and consideration of ECMO
- ☐ D Immediate tracheostomy

ANSWER C

WHY For severe ARDS refractory to lung-protective ventilation and prone positioning, neuromuscular blockade (cisatracurium) along with assessment for veno-venous ECMO support is the recommended step, as supported by the EOLIA trial and CESAR trial findings. Inhaled nitric oxide has not been shown to improve mortality. Steroids are controversial and tracheostomy is not an acute intervention for hypoxemia.

QUESTION 5 SINGLE CHOICE

Which of the following is the first-line vasopressor for adult patients with septic shock after adequate fluid resuscitation?

- ☐ A Phenylephrine
- ☐ B Vasopressin
- ☒ C Norepinephrine (noradrenaline)
- ☐ D Dopamine

ANSWER C

WHY Norepinephrine is the recommended first-line vasopressor for septic shock based on multiple trials (including the SOAP II trial) showing lower arrhythmia rates and improved outcomes compared to dopamine. Dopamine is associated with higher tachyarrhythmia risk, phenylephrine is a pure alpha agonist, and vasopressin is typically reserved as a second-line adjunct.

QUESTION 6 SINGLE CHOICE

A trauma patient receives massive transfusion and develops generalized tonic-clonic seizures. Laboratory results show: serum sodium 135 mmol/L, potassium 4.5 mmol/L, calcium 7.8 mg/dL (normal), magnesium 2.0 mg/dL (normal), and a prolonged QT interval on ECG. Despite normal total calcium, what electrolyte derangement is most likely responsible?

- ☐ A Hypomagnesemia
- ☐ B Hyperkalemia
- ☒ C Hypocalcemia based on ionized calcium
- ☐ D Hyponatremia

ANSWER C

WHY In massive transfusion, the binding of ionized calcium by citrate (used as an anticoagulant in stored blood) causes a precipitous drop in ionized calcium. Because total calcium measured includes both bound and unbound fractions, ionized calcium — not total calcium — must be measured to detect this acute, life-threatening hypocalcemia that causes tetany, seizures, and QT prolongation.

QUESTION 7 SINGLE CHOICE

A patient with inferior wall STEMI develops hypotension, clear lung fields, bradycardia, and jugular venous distension (Kussmaul's sign). Which of the following interventions is most appropriate first-line management?

- ☐ A Large-volume crystalloid bolus
- ☒ B Intra-aortic balloon pump and immediate PCI
- ☐ C High-dose inotropic support
- ☐ D Pericardiocentesis

ANSWER B

WHY Inferior wall MI with hypotension, clear lungs, bradycardia and Kussmaul's sign suggests right ventricular infarction with poor RV output. These patients are preload-dependent and worsen with aggressive fluids. Definitive management is urgent revascularization via primary PCI, often supported with intra-aortic balloon counterpulsation. Large-volume fluid resuscitation can precipitate cardiogenic shock, and inotropes without revascularization are inadequate.

QUESTION 8 SINGLE CHOICE

In a hemodynamically unstable patient on multiple vasopressors, the intensivist wishes to add an agent that primarily increases systemic vascular resistance without significant inotropy or chronotropy. Which agent has the most appropriate pharmacodynamic profile?

- ☐ A Dobutamine
- ☒ B Vasopressin
- ☐ C Epinephrine
- ☐ D Norepinephrine

ANSWER B

WHY Vasopressin acts on V1 receptors on vascular smooth muscle to cause potent vasoconstriction without inotropic or chronotropic effects, making it a valuable adjunct when catecholamine refractory septic shock occurs. Dobutamine is primarily an inotrope, epinephrine has strong alpha and beta effects, and norepinephrine has beta-1 as well as alpha-adrenergic activity.

QUESTION 9

MULTIPLE CHOICE

Which of the following are causes of metabolic acidosis with a normal anion gap (hyperchloremic metabolic acidosis)? (Choose two.)

- ☐ A Diabetic ketoacidosis
- ☒ B Normal saline (0.9% NaCl) fluid resuscitation
- ☒ C Diarrhea-induced bicarbonate loss
- ☐ D Uremia from acute kidney injury
- ☐ E Lactic acidosis from septic shock

ANSWER B - C

WHY Normal saline contains 154 mEq/L of chloride compared to plasma chloride of ~100 mEq/L; large-volume resuscitation causes a normal anion gap (hyperchloremic) metabolic acidosis. Diarrhea leads to loss of bicarbonate-rich intestinal fluid, also producing a normal anion gap acidosis. DKA, uremia, and lactic acidosis all generate an elevated anion gap metabolic acidosis due to accumulation of unmeasured organic anions.