

Critical Care Medicine Exam Sample Items

1. In a patient without cardiac disease, depressed myocardial function in sepsis is **MOST** likely to be manifested by a decrease in which of the following?
 - A. Coronary blood flow
 - B. Left ventricular end-diastolic volume
 - C. Left ventricular stroke work

2. Which of the following pharmacokinetic and dynamic parameters are **MOST** likely to account for improved effectiveness of beta-lactam antibiotics?
 - A. Duration of drug concentration greater than mean inhibitory concentration
 - B. Peak drug concentration
 - C. Trough drug concentration

3. A 49-year-old man with acute renal failure is receiving continuous venovenous hemodialysis. Serum potassium concentration is 5.8 mEq/L. Increasing which of the following is **MOST** likely to increase potassium clearance in this patient?
 - A. Dialysate flow rate
 - B. Rate of fluid replacement
 - C. Ultrafiltration rate

4. A 39-year-old woman is brought to the emergency department by ambulance after being found unconscious. She has a history of major depressive disorder. Temperature is 37°C, blood pressure is 130/70 mmHg, heart rate is 120 bpm, and respiratory rate is 22/min. The patient is comatose, and her pupils are fixed and dilated. Glasgow Coma Scale score is 5. Laboratory studies of serum show:

Sodium	134 mEq/L
Chloride	110 mEq/L
Potassium	4.8 mEq/L
Bicarbonate	5 mEq/L

BUN	6 mg/dL
Glucose	360 mg/dL
Osmolality	365 mOsm/kg

Arterial blood gas analysis shows:

PaO ₂	380 mmHg
PaCO ₂	32 mmHg
pH	6.9

Measurement of which of the following serum concentrations is the **MOST** appropriate next step to confirm the diagnosis?

- A. Ethanol
- B. Methanol
- C. Salicylate

5. A 70-kg man with a history of COPD and ischemic heart disease is admitted to the ICU for management of community-acquired pneumonia. He receives mechanical ventilation for one week. While undergoing a spontaneous breathing trial, he immediately develops wheezing, tachycardia, and hypotension. Which of the following is the **MOST** likely cause of these clinical findings?

- A. Decreased FRC
- B. Increased left ventricular afterload
- C. Increased pulmonary vascular resistance

6. An unresponsive 59-year-old woman is admitted to the ICU following a motor vehicle collision. Ten minutes after ICU arrival, she develops hypotension with a blood pressure of 82/52 mmHg. The following bedside transthoracic echocardiography parasternal long axis views are obtained:

<https://vimeo.com/321976613>

Administration of which of the following medications is **MOST** appropriate?

- A. Epinephrine
- B. Milrinone
- C. Phenylephrine

ANSWER KEY

1. C

2. A

3. A

4. B

5. B

6. C