

Model Questions and Their Answers for Surgery Course 351

Each question or statement is followed by five suggested answers select the one option the one that is best and mark it in the answer sheet

1- LASER has a variety of applications in medicine. The acronym LASER is derived from which of the following combinations:

- A- Light Amplification by Stimulated Emission of Radiation
- B- Limited Application of Sonic Energy Radiation
- C- Light Assisted and Sonar Echo Replicated
- D- Linearly Assimilated and Serially Emitted Rays
- E- Lightly Applied Simulated Energy Radiation

CORRECT ANSWER: **A**

2- Millimoles are frequently used in measurements, a millimole of a substance is:

- A- The molecular weight of that substance expressed in grams
- B- The molecular weight of that substance expressed in milligrams
- C- The valence of that substance multiplied by 7.3
- D- The atomic weight of the that substance expressed in milligrams
- E- The atomic weight multiplied by the valence

CORRECT ANSWER: **B**

BASIS FOR THE QUESTION:

A mole of a substance is the molecular weight of that substance in grams and a millimole is that figure expressed in milligrams

3- Many important substances in the body are measured in *equivalents*, An equivalent of an ion is:

- A- The atomic weight expressed in grams divided by the valence
- B- The atomic weight multiplied by the valence
- C- The molecular weight divided by valence
- D- A measure of concentration of the substance

E- In the case of univalent ions 1 mEq is the same as 10 millimoles

CORRECT ANSWER: **A**

BASIS FOR THE QUESTION:

The electrolytes may be expressed in terms in terms of chemical combining activity, or “equivalents”. An equivalent of an ion is its atomic weight expressed in grams divided by the valence, whereas one mEq of an ion is that figure expressed in milligrams. In the case of univalent ions 1 mEq is the same as a millimole. In the case of divalent ions such as calcium or magnesium 1 mmol equals 2 mEq

4- Potassium disturbances are known to cause ECG changes. Which of the following match ups of potassium abnormality and ECG changes are correct?

A- Hypokalemia: ST flattening, the presence of a U-wave and absent of P waves

B- Hyperkalemia: ST flattening, the presence of a U-wave, peaked T-wave & widened QRS

C- Hypokalemia: shortened QT interval, peaked T-wave, absent P-wave and characteristic sine wave pattern

D-Hyperkalemia: peaked T-wave, absent P-wave, widened QRS and characteristic sine wave pattern

E- Hyperkalemia: peaked P wave and normal QRS

CORRECT ANSWER: **D**

BASIS FOR THE QUESTION:

Hyperkalemia can present as widened flat P-waves or absent P-waves, shortened QT interval, peaked T-wave, widened QRS complex and really high potassium concentration may present as the characteristic sine wave pattern. Hypokalemia can present as ST flattening, ST inversion, the presence of U-wave and widened QRS complex.

5- A man who is known cancer patient comes to the clinic. He informs you that over the past week he feels anorexia, nausea with minor vomiting, tired increased frequency or urination and awakening in the middle of the night to urinate. Which of the following electrolyte disorders would you expect him to have?

- A- Hypokalemia
- B- Hyponatremia
- C- Hypocalcemia
- D- Hypercalcemia
- E- Hypophosphatemia

CORRECT ANSWER: **D**

BASIS FOR THE QUESTION:

The patient presents with symptoms consistent with hypercalcemia. Others may include depression, psychosis, renal insufficiency and ventricular arrhythmias. Hypokalemia can present with muscle weakness, cramps and EKG changes. Hyponatremia presents as headache, nausea, vomiting, cramps lethargy disorientation and seizures. Hypocalcemia will classically present as tetany.

6- Which is **NOT** true of cardiopulmonary resuscitation (CPR)?

- A- Closed chest massage is as effective as open chest massage.
- B- The success rate for out-of-hospital resuscitation may be as high as 30% to 60%.
- C- The most common cause of sudden death is ischemic heart disease.
- D- Standard chest massage generally provides less than 15% of normal coronary and cerebral blood flow.
- E- Electrical cardioversion is performed after chest compression

CORRECT ANSWER **A**

Basis for the Question:

Closed chest massage is not as effective as open-chest massage in normalizing blood pressure or perfusion of vital organs, and closed chest massage does generally deliver 5% to 15% of normal coronary and cerebral blood flow. The success rate for out-of-hospital resuscitation has been as high as 30% to 60% when communities are prepared to institute CPR early after a cardiac arrest. Ischemic heart disease is the most common cause of sudden death.

7- Which of the following is NOT a physical examination finding in a young adult with coarctation of the aorta?

- A. Posterior systolic murmur between the scapulas.
- B. Diminished femoral pulses.
- C. Elevated blood pressure in left arm as compared with right arm.
- D. Some degree of cyanosis in the lower extremities
- E- Visible collaterals around the scapulae

CORRECT ANSWER **D**

Basis for the Question:

A systolic murmur that radiates posteriorly is characteristic of coarctation of the aorta. Coarctation produces obstruction to aortic flow, and thus the femoral pulse has a diminished volume with delayed upstroke. Hypertension in coarctation is multifactorial, but the most important factor is diminished renal flow. If the right subclavian artery is anomalous and arises distal to the coarctation, blood pressure may be greater in the left arm than in the right. Isolated coarctation does not produce cyanosis in the lower extremities or any part of the body.

8- Which of the following arteries is most likely to be involved with serious atherosclerosis?

- A- The anterior descending coronary artery.
- B- The left coronary artery.
- C- The right coronary artery.
- D- The circumflex coronary artery.
- E- The left main coronary artery

CORRECT ANSWER **A**

Basis for the Question:

In order of frequency, the anterior descending coronary artery is the most commonly involved with atherosclerosis, followed by the right coronary, the circumflex, and the left main coronary artery.

9- The Internal Jugular Vein is extensively used for cannulation in selected situations. Correct statement about Internal Jugular Vein cannulation is:

- A- When the head is rotated in opposite side the vein follows an oblique course
- B- The vein lies medial to the carotid artery
- C- Using this vein eliminates the risk of a pneumothorax
- D- Cannulating it can result in injury to the thoracic duct
- E- Internal jugular vein cannulation is well tolerated by the awake patient

CORRECT ANSWER **D**

Basis for the Question:

Cannulation of the internal jugular vein reduces but does not eliminate the risk of pneumothorax. It introduces risks of carotid artery puncture and thoracic duct injury. The vein follows an oblique course as it runs down the neck. When the head is rotated to the opposite side the vein forms a straight line from the pinna of the ear to the sternoclavicular joint. Awake patients often complain of the limited neck mobility when it is cannulated.

10- Which of the following findings is the most accurate indicator of left-sided congestive heart failure in a postoperative patient?

- A- Peripheral edema
- B- Elevated pulmonary capillary wedge pressure associated with systemic hypotension
- C- Elevated pulmonary artery pressure associated with systemic hypotension
- D- Widened systemic arterial pulse pressure with tachycardia
- E- Elevated central venous pressure with a narrow arterial pulse pressure

CORRECT ANSWER **B**

Basis for the Question:

Starling's law of the heart defines heart failure as a decrease in stroke work associated with an elevated filling pressure. An elevated pulmonary capillary wedge pressure combined with systemic hypotension fulfills this definition. Peripheral edema, an elevated pulmonary artery pressure associated with systemic hypotension, a widened systemic arterial pulse pressure with tachycardia, and elevated central venous pressure with a narrow arterial pulse pressure may be associated with left-sided congestive heart failure, but are not diagnostic. Peripheral edema may result from administration of large volumes of crystalloid solution, and elevated pulmonary artery pressure may be associated with pulmonary embolus, whereas elevated central venous pressure with a narrow arterial pulse pressure is most often associated with cardiac tamponade. Although tachycardia may be associated with left-sided congestive heart failure, a widened systemic arterial pulse pressure suggests that the stroke volume of the heart is actually increased above normal - just the opposite of what occurs with left-sided congestive heart failure

