

51- Following an accident in a paper mill, it is found that the particles released into the air were 20 to 30 μ m in diameter. Where in the respiratory tracts of the workers in the plant at the time of the accident were the particles most likely to have deposited?

- A. Alveolar space
- B. Bronchi
- C. Nose and nasopharynx
- D. Respiratory bronchioles
- E. Terminal bronchioles

52- A 46-year-old man is evaluated for 2 days of fever, worsening dyspnea, and cough productive of rust-colored sputum. His oxygen saturation at the time of presentation is 88% breathing air. He is sweating and tachypneic, with dullness to percussion and decreased breath sounds at his right lung base. A chest radiograph demonstrates a focal opacity in the right lower lobe. Which of the following statements regarding this patient's diagnosis is true?

- A. Shunt is the most likely cause of his hypoxemia.
- B. He is likely to have carbon dioxide retention.
- C. Following resolution, he will have a fibrotic scar in his right lung.
- D. All common bacterial causes grow on routine culture media.
- E. Blood flow through the affected area of his lung is increased.

53- Shortly after birth, a baby boy develops meconium ileus and, on further testing, is found to have an elevated sweat chloride level. Which of the following statements best characterize the future issues that will affect this child?

- A. He is unlikely to live past 20 years of age.
- B. He is highly likely to be infertile.
- C. Extrapulmonary involvement is unlikely to occur.
- D. Mucociliary function in the airways will be unaffected.
- E. He will not require treatment once past the age of 5.

54- A patient was admitted to the hospital with an exacerbation of chronic obstructive pulmonary disease. When given 100% oxygen to breathe, his arterial Pco₂ increased from 50 to 80 mm Hg. A likely cause was:

- A. Increased airway resistance.
- B. Depression of ventilation.
- C. Depression of cardiac output.
- D. Reduced levels of 2,3-diphosphoglycerate in the blood.
- E. Bohr effect.

55- A 58-year-old woman with severe COPD due to long-standing smoking presents to the emergency department with worsening dyspnea and headache during a chest infection. On exam, she is confused and restless and has a flapping tremor and diffuse expiratory wheezes. Which of the following would you most likely see on an arterial blood gas in this patient?

- A. Low pH with a primary respiratory acidosis
- B. Low pH with a primary metabolic acidosis
- C. High pH with a primary respiratory alkalosis
- D. High pH with a primary metabolic alkalosis
- E. Normal acid-base status