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1. Which of the following is NOT a function of the lungs?

- A. Metabolism
- B. Serves as a reservoir of blood for the left ventricle.
- C. It is a filter to protect the systemic vasculature
- D. Facilitates the exchange of O₂ and CO₂ between air and blood.
- E. All of the above are true.

Show answer

Correct Answer: E

2. Which of the following is in the correct path of CO₂ from the tissue to the atmosphere?

- A. Reaction with H₂O to make H₂CO₃, dissociation to H⁺ and HCO₃⁻, H⁺ combines with imidazole side chain of hemoglobin, carried back to lungs as HHb⁺ and HCO₃⁻, reverse reaction forms CO₂.
- B. O₂ is metabolized to CO₂, reaction with H₂O to make H₂CO₃, H₂CO₃ combines with imidazole side chain of hemoglobin, H₂CO₃Hb⁺ is carried back to the lungs, reverse reaction forms CO₂.
- C. Reaction with H₂O to make H₂CO₃, dissociation to H⁺ and HCO₃⁻, HCO₃⁻ combines with imidazole side chain of hemoglobin, carried back to the lungs as HCO₃-Hb⁺ and H⁺, reverse reaction forms CO₂.
- D. O₂ is metabolized to CO₂, reaction with H₂O to make H₂CO₃, dissociation to H⁺ and HCO₃⁻, carried back to lungs in this form, reverse reaction forms CO₂.

Show answer

Correct Answer: A

3. Which of the following is NOT an effector of respiration?

- A. Heart
- B. diaphragm
- C. intercostals
- D. Trapezius.

Show answer

Correct Answer: D

4. Which of the following is the first branching of the bronchial tree that has gas exchanging capabilities?

- A. Terminal bronchioles.
- B. Respiratory bronchioles.
- C. Alveoli
- D. segmental bronchi
- E. alveolar ducts.

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Correct Answer: B

5. Which of the following could NOT be part of an acinus?

- A. alveolar sacs
- B. Alveolar ducts
- C. Terminal bronchioles
- D. Respiratory bronchiole

Show answer

Correct Answer: C

6. If you increased the left atrial pressure from 5 mmHg to 15 mmHg, what effect would that have on pulmonary circulation?

- A. It would force blood the opposite direction.
- B. It would increase the speed at which blood moves through the pulmonary circulation.
- C. No change.
- D. Blood flow would almost or completely stop.

Show answer

Correct Answer: D

7. Which of the following concerning average lung volumes and capacities of a person at rest

is TRUE?

- A. $TLC > VC > TV > FRC$
- B. $TLC > FRC > VC > TV$
- C. $TLC > VC > FRC > TV$
- D. $TLC > FRC > TV > VC$

Show answer

Correct Answer: C

8. Which of the following is NOT a normal occurrence with increasing age?

- A. Vital capacity of the lung decreases.
- B. Residual volume increases.
- C. Functional residual capacity increases.
- D. Inspiratory capacity decreases.
- E. Expiratory reserve volume increases.

Show answer

Correct Answer: E

9. Which of the following spirometry measurements has the greatest sensitivity for detecting early air flow obstruction?

- A. FVC
- B. FEV1
- C. FFE
- D. FEF25-75

Show answer

Correct Answer: D

10. Which of the following does NOT happen during inspiration?

- A. The ribs move upward.
- B. The diaphragm lifts up.
- C. The antero-posterior dimensions of the chest are increased.
- D. The transverse dimensions of the thorax are increased.

E. The scalene and sternocleidomastoid muscles can be recruited for inspiration.

Show answer

Correct Answer: B

11. During inspiration, how does alveolar pressure compare to atmospheric pressure?

- A. Alveolar pressure is greater than atmospheric.
- B. Alveolar pressure is less than atmospheric.
- C. Alveolar pressure is the same as atmospheric.
- D. Alveolar pressure is one of the few pressures where the reference pressure is not atmospheric.

Show answer

Correct Answer: B

12. Which of the following represents the pressure difference that acts to distend the lungs?

- A. Alveolar pressure
- B. Airway opening pressure
- C. Transthoracic pressure
- D. Transpulmonary pressure
- E. Esophageal pressure.

Show answer

Correct Answer: D

13. If a patient had a progressive lung disease that required an ever increasing pressure to fill the same volume of lung, how would the lung's compliance be affected?

- A. It would increase it.
- B. It would stay the same.
- C. It would decrease it.
- D. These variables do not affect lung compliance.

Show answer

Correct Answer: C

14. An asthma sufferer finds she has to breathe at twice her normal rate. How does that affect her dynamic compliance?

- A. It stays the same.
- B. It decreases.
- C. It increases.
- D. Static compliance, not dynamic, is the variable affected by asthma.

Show answer

Correct Answer: B

15. According to the Law of Laplace, air should flow from the smaller alveoli to the larger, collapsing them. In the lungs, several factors counter that tendency, and stabilize the alveolar structures. Which of the following is NOT one of them?

- A. Surfactant lowers surface tension to a greater degree when it is on a smaller surface area, allowing the smaller alveoli to stay open.
- B. Mechanical stability is given by surrounding alveoli.
- C. Transpulmonary pressure is lower for smaller alveoli, allowing them to stabilize in comparison to the bigger ones.
- D. Surface tension at the gas-liquid interface increases as alveolar surface area increases.

Show answer

Correct Answer: C