Respiratory System Questions

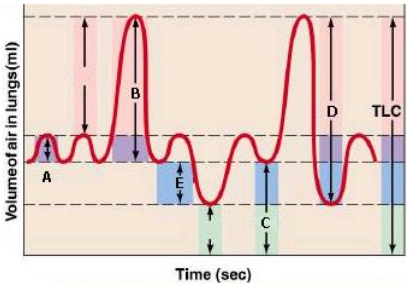
Matching: Choose the proper partial pressure for the following respiratory gases. You may use each choice more than once.

e. 1. Inspired PO_2
a. 2. Inspired PCO_2
d. 3. Alveolar PO_2
b. 4. Alveolar PCO_2
d. 5. Arterial blood PO_2
b. 6. Arterial blood PCO_2
b. 7. Mixed venous blood PO_2
c. 8. Mixed venous blood PCO_2

a. 0 mmHg
b. 40 mmHg
c. 46 mmHg
d. 100 mmHg
e. 160 mmHg

Match the following with the appropriate marker on the graph

a. 9. 500 ml
c. 10. ERV + RV
e. 11. 1200 ml
d. 12. 4700 ml
b. 13. IRV + TV



14. A _ lung disease causes problems getting air in and out, decreases FVC and $FEV_{1.0}$/FVC remains normal, while a ___ lung disease causes a problem getting air out, has a normal FVC and lowers $FEV_{1.0}$/FVC.
a. decreasing; increasing
b. increasing; decreasing
* c. restrictive; obstructive
d. obstructive; restrictive

15. When the alveolar pressure is greater than the atmospheric pressure _____ occurs.
a. inspiration
b. nothing
* c. expiration
d. a Pneumothorax

16. Pleural pressure is always _____ than alveolar pressure.
* a. less
b. more
c. two times more
d. more positive

17. Transpulmonary pressure equals _____ and should be _____.
a. forced expiratory volume + interpleural pressure; positive
b. alveolar pressure – lung inflation; negative
* c. alveolar pressure – interpleural pressure; positive
d. interpleural pressure – alveolar pressure; positive
e. alveolar pressure – interpleural pressure; negative

18. The ventilation/perfusion ratio (V_A/Q) matches air and blood flow in the lungs
* a. true
b. false

19. Hypoxia in an area of the lungs will cause:
a. vasodilation
b. vasoconstriction

20. Surfactant:
a. increases surface tension
b. increases surface area
c. collapses alveoli
* d. prevents surface tension
e. two of the above

21. ___ is the ability of the lungs to expand with a change in pressure
a. resistance
* b. compliance
c. elastance
d. surfactance
e. flexibility

22. The following are true for airway resistance:
a. affected by smooth muscle throughout the respiratory passageway
b. are controlled by sympathetics and parasympathetics
c. an increase in diameter causes a decrease in resistance
d. a and c are correct
* e. a, b and c are correct

23. The following affect diffusion:
a. partial pressure
b. gas solubility in membrane
c. surface area
d. thickness of membrane
* e. all of the above

Match the following with the correct percentage of each gas in the atmosphere.

b.	24. O_2	a. 0.04%
c.	25. N	b. 20%
d.	26. H_20	c. 79%
a.	27. CO_2	d. 0.50%

28. The total atmospheric pressure _____ with altitude and the partial pressure percentages _____.
a. increases; remain the same
* b. decreases; remain the same
c. remains the same; increase
d. remains the same; decreases

29.With a rightward shift of the Hb dissociation curve there is an increase in:
- a. pH
- b. DPG
- c. Temperature
- d. a and b
- * e. b and c

30. With a leftward shift of the Hb dissociation curve there is an increase in:
- * a. pH
- b. DPG
- c. Temperature
- d. a and b
- e. b and c

31. Considering the following CO_2 transport equation, which statement is correct:

$$CO_2 + H_2O \xleftarrow{Carbonic\ Anhydrase} H_2CO_3 \leftrightarrow H^+ + HCO_3^-$$

- a. equilibrium goes to left due to high CO_2 in tissues compared to H^+ and HCO_3^-
- b. equilibrium goes to right due to high CO_2 in tissues compared to H^+ and HCO_3^-
- c. equilibrium goes to left due to low CO_2 in lungs compared to H^+ and HCO_3^-
- d. a and c
- * e. b and c

32. An increase in _____ causes a(n) _____ in ventilation.
- a. O_2; increase
- * b. CO_2; increase
- c. CO_2; decrease
- d. none of the above

33. Pulmonary ventilation equals:
- * a. tidal volume x respiratory rate
- b. dead space x respiratory rate
- c. (tidal volume – dead space) x respiratory rate
- d. (dead space – respiratory rate) x tidal volume

34. Alveolar ventilation equals:
- a. tidal volume x respiratory rate
- b. dead space x respiratory rate
- * c. (tidal volume – dead space) x respiratory rate
- d. (dead space – respiratory rate) x tidal volume