

NAME _____

DATE _____

3100B HFOV Competency Exam

(Circle the appropriate answer)

1. The following statement is TRUE
 - a. Decreasing frequency results in a lowered PaCO₂
 - b. Controls for oxygenation and ventilation are the same
 - c. Frequency is the primary control for CO₂ elimination in HFOV

2. The following statement is true
 - a. Tidal volumes delivered by HFOV are typically less than the physiological dead space of the patient.
 - b. HFOV is a volume controlled, pressure limited ventilator.
 - c. HFOV requires the use of a special endotracheal tube.

3. The 3100B's method of oxygenation is very effective because it
 - a. Stimulates the production of endogenous surfactant
 - b. Maintains an open alveolus by not allowing critical closure, eliminating the need for constant re-inflation.
 - c. Utilizes a diffusion process called Brownian movement

4. Of the following, which describes the mechanics of ventilation used by the 3100B?
 - a. Active inspiration with passive exhalation
 - b. Active inspiration and active exhalation
 - c. Passive inspiration with active exhalation

5. Ventilation and CO₂ exchange using the 3100B is best described by
 - a. Ventilation is a function of large tidal volumes at low Paw
 - b. Ventilation is a function of I:E ratio
 - c. Ventilation is a function of frequency and Vt²

6. Pulmonary Injury Sequence may progress by which of the following processes
 - a. Normal respiratory cycles (tidal volume ventilation) in a surfactant impaired lung
 - b. HFOV with topical steroids and sympathomimetic Rx.
 - c. Over-stimulation of smooth muscle tissue caused by histamine release

7. HFOV in ARDS is most efficiently administered
 - a. After the patient has been on conventional mechanical ventilation for at least one week
 - b. With an initial Paw of 5cmH₂O above conventional Paw
 - c. When the patient has marginal hemodynamic function

8. Choose the proper sequence for management of CO₂ elimination
 - a. Frequency, amplitude, I:E ratio
 - b. I:E ratio, Frequency, Amplitude
 - c. Amplitude, Frequency, I:E ratio

9. The control of mean airway pressure in the 3100B is regulated by
 - a. Restricting the bias flow past the green balloon valve
 - b. Using an external PEEP valve
 - c. An electronic pressure transducer

10. Increasing the Power Control will most likely result in the following
 - a. A drop in minute ventilation and a rise in PaCO₂
 - b. An increase in minute ventilation and a rise in PaCO₂
 - c. An increase in minute ventilation and a drop in PaCO₂

11. Which alarms stop the oscillator and opens the circuit pressure to atmospheric pressure?
 - a. Paw > 60 cmH₂O or Paw < 5 cmH₂O
 - b. Volume limit
 - c. High or Low Mean Airway Pressure Limit

12. Delta-P or Amplitude is primarily attenuated by the following
 - a. Endotracheal tube size
 - b. Patient weight
 - c. Patient diagnosis

13. A diminished chest wiggle along with a drop in SaO₂ might signal the following
 - a. Improved compliance
 - b. Need for suctioning
 - c. Drop in cardiac output

14. The Patient Circuit Calibration procedure should be performed
 - a. At least every 500 hours
 - b. Whenever switching patient circuits or circuit components
 - c. Only when putting a new patient on the 3100B

15. Erratic Paw readings can be caused by
 - a. Low voltage to the oscillator magnet
 - b. A change in the air or oxygen line pressures
 - c. Spontaneous breathing

16. Adequate chest movement for an adult patient on HFOV can best be described as
 - a. Visible down to the patient's toes
 - b. Above the diaphragm
 - c. From the chest to mid-thigh

17. A deliberately induced endotracheal tube cuff leak may achieve the following
 - a. Cause a rise in PaCO₂ due to a drop in delivered volumes
 - b. Cause a drop in PaCO₂ due to increased wash-out by the bias flow
 - c. Cause a rise in delivered Paw

18. Auscultation of heart and bowel sounds is best accomplished by
 - a. Stopping the oscillator for 20-30 seconds. Paw will be maintained.
 - b. Shutting off the ventilator
 - c. Auscultation should be performed with the oscillator running

19. Pneumothorax can be best determined on HFOV by
 - a. Auscultation
 - b. Loss of chest wiggle on the affected side. Confirm with chest x-ray
 - c. Changes in displayed Paw and Delta-P

20. Focus should be placed on weaning which HFOV parameter first
- Amplitude
 - Frequency
 - FiO₂
21. The following statement best describes weaning large patients from HFOV
- Patients can be weaned and extubated directly from HFOV
 - Spontaneous breathing is not well tolerated on HFOV and patients should be transitioned to CMV for weaning
 - Weaning should not be attempted until the Amplitude is reduced to 40.
22. Erratic Paw display IS NOT caused by the following
- Inappropriately low setting of the Paw limit thumbwheel
 - Spontaneous breathing
 - Secretions in the airway
23. If the Max Paw alarm is met, the ventilator will:
- Depressurize to 12(\pm 3)cmH₂O below the Set Max Paw setting, continue to cycle, providing audible and visual alarms until the fault is resolved.
 - Depressurize to ambient pressure and stop the driver.
 - Continue to run, but visually alarm to alert the user
24. The following statement DOES NOT describe hemodynamic response to HFOV
- Transient hypotension due to relatively high Paw's usually responds well to fluid bolus or vasopressors
 - All patients experience hypotension when transitioned from CMV to HFOV
 - Hypotensive patients should be given adequate preload and/or vasopressors prior to transition to HFOV
25. Opacification of lung fields, along with a low SaO₂ indicates the following
- Underinflation, requiring an increase in Paw
 - Overinflation, requiring a decrease in Paw
 - Underinflation, requiring an increase in FiO₂

Note: This exam is not designed to be a comprehensive evaluation of the clinical skills necessary to manage patients on HFOV.