

## Self-Assessment RSPT 1050: Module G

1. Define  $P_{50}$ . **The partial pressure that is present when 50% of the available hemoglobin is saturated with oxygen.**
2. What is the normal  $P_{50}$ ? **27 mm Hg**
3. Complete the following table

	<u><math>PaO_2</math></u>	<u><math>SaO_2</math></u>
A.	<b>27</b> mm Hg	<b>50%</b>
B.	40 mm Hg	<b>75%</b>
C.	50 mm Hg	<b>80%</b>
D.	60 mm Hg	<b>90%</b>
E.	100 mm Hg	<b>97%</b>
F.	250 mm Hg	<b>100%</b>
4. If a patient has normal lungs and you put an oxygen mask on them that would deliver 100% oxygen, how high would you raise the  $PaO_2$ ?  
 **$[(P_{BARO} - 47) F_{iO_2}] - (PaCO_2 \times 1.25) = [(760-47)1.0] - (40 \times 1.25) = 713 - 50 = 663$  torr**
5. How do you calculate the amount of dissolved oxygen in vol%?  **$PaO_2 \times .003$**
6. The relationship between the  $PaO_2$  and the  $SaO_2$  is a sigmoidal shaped curve called the **OXYHEMOGLOBIN DISSOCIATION CURVE.**
7. The steep portion of the oxygen dissociation curve is
  - A. Above 60 mm Hg
  - B. **Below 60 mm Hg**
8. The pulse oximeter should not be used in which of the following circumstances? (Circle all that apply)
  - A. **Dark colored nail polish**
  - B. **Poor perfusion**
  - C. **Increased COHb%**
  - D. **Increased MetHb%**
  - E. **Intravascular dyes**
9. What is the formula for Oxygen Delivery ( $DO_2$ )=  **$CaO_2 \times CO \times 10$**
10. What is the normal oxygen delivery? **1,000 mL/min**
11. Given the following, calculate the  $CaO_2$ ,  $CvO_2$ ,  $CaO_2 - CvO_2$   
Hb: 8 gms%  $PaO_2$ : 66 mm Hg  $SaO_2$ : 90%  $PvO_2$ : 38 mm Hg  $SvO_2$ : 69%
  - A.  $CaO_2 = (Hb \times 1.34 \times SaO_2) + (PaO_2 \times .003) = (8 \times 1.34 \times .9) + (66 \times .003) = 9.65 + .2 = 9.9$  vol%
  - B.  $CvO_2 = (Hb \times 1.34 \times SvO_2) + (PvO_2 \times .003) = (8 \times 1.34 \times .69) + (38 \times .003) = 7.40 + .11 = 7.5$  vol%
  - C.  $Ca - vO_2 = CaO_2 - CvO_2 = 9.9 - 7.5 = 2.4$  vol%

12. Given the following blood gases indicate if the oxygen dissociation curve is shifted to the right, left, or no shift.
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|----|--|-----------------|
| A. | PaO <sub>2</sub> 40 mm Hg, SaO <sub>2</sub> 60%  | <b>RIGHT</b>    |
| B. | PaO <sub>2</sub> 100 mm Hg, SaO <sub>2</sub> 99% | <b>LEFT</b>     |
| C. | PaO <sub>2</sub> 50 mm Hg, SaO <sub>2</sub> 80%  | <b>NO SHIFT</b> |
| D. | PaO <sub>2</sub> 40 mm Hg, SaO <sub>2</sub> 50%  | <b>RIGHT</b>    |
13. Methemoglobinemia results when the heme portion of the Hb molecule is oxidized from the **FERROUS** to the **FERRIC** state.
14. What is the normal oxygen extraction ratio? **.25 OR 25%**
15. List clinical conditions that would increase a patient's oxygen consumption (VO<sub>2</sub>).  
**EXERCISE**  
**SEIZURES**  
**SHIVERING**  
**HYPERTHERMIA**
16. What does refractory hypoxemia mean? **DOES NOT RESPOND TO OXYGEN THERAPY.**
17. A true capillary shunt has a V/Q of **IGNORE THIS QUESTION – THE ANSWER IS ZERO.**
18. A true shunt will respond to oxygen therapy  
A. True      B. **False**
19. How is a true shunt treated? **IGNORE (ANATOMICAL); SURGICAL REPAIR (CARDIAC DEFECT)**
20. A relative shunt or shunt effect has a V/Q ratio of **BETWEEN ZERO AND 0.8**
21. A relative shunt will respond to oxygen therapy  
A. True      B. **False**
22. What does the initials **PEEP** stand for? **POSITIVE END EXPIRATORY PRESSURE**
23. The normal anatomic shunt is 2-5% and results when venous blood mixes with arterial blood from which three veins?
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|----|------------------|
| A. | <b>THEBESIAN</b> |
| B. | <b>PLEURAL</b>   |
| C. | <b>BRONCHIAL</b> |