

TEST BANK

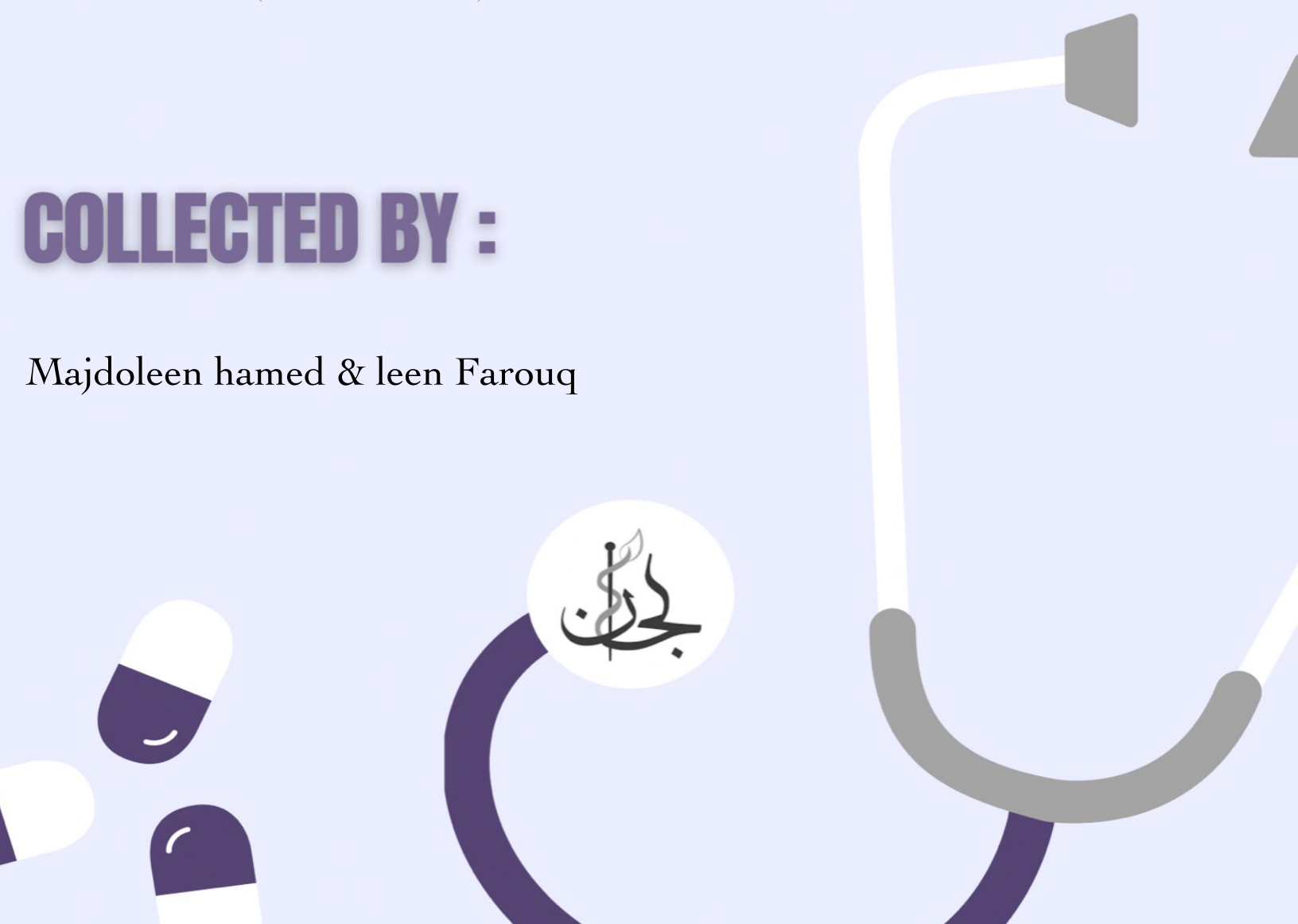
Doctor 2019

SUBJECT:

RS physiology past papers
Final material (Sheets 8 - 11)

COLLECTED BY :

Majdoleen hamed & leen Farouq

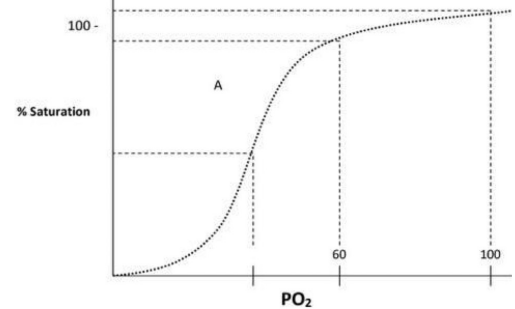


017 MIDTERM

1-Which of the following is INCORRECT regarding the above oxyhemoglobin curve?

- a. higher P50 than normal means that the O₂ binds less tightly to Hb.
- b. HbF is normally shifted to the left
- c. An increase in PCO₂ causes a right shift.
- d. An increase in blood pH increases P50.
- e. An increase in temperature shifts the O₂ uptake curve to the right.

Answer:D



2-In diving, divers first hyperventilate before they go into water. This hyperventilation allows one to hold one's breath for a longer period of time, because hyperventilation:

- a. increases the oxygen reserve of systemic arterial blood
- b. decreases the PCO₂ of systemic arterial blood
- c. decreases the pH of systemic arterial blood
- d. increases brain blood flow
- e. make alveolar air full of O₂ which divers can use while diving

Answer:B

3-While obtaining the arterial blood sample, the blood-gas technician draws room air into the syringe before measuring the blood-gas values. As a result, which of the following is true?

- a. The measured values of both PaO₂ and PaCO₂ will be higher than the patient's actual values
- b. The measured values of both PaO₂ and PaCO₂ will be lower than the patient's actual values
- c. The measured PaO₂ will be higher and the measured PaCO₂ will be lower than the patient's actual blood gas values
- d. The measured PaO₂ will be lower and the measured PaCO₂ will be higher than the patient's actual blood gas values
- e. The measured values of PaO₂ and PaCO₂ will accurately reflect the actual values

Answer:C

4-Regarding pulmonary vascular resistance:

- a. is low at high lung volumes
- b. is low at low lung volumes
- c. if increased, can cause right heart failure

- d. is measured through routine pulmonary function tests
- e. is more than systemic vascular resistance

Answer:C

5-Which of the following sets of differences best describe the hemodynamics of the pulmonary circulation when compared with systemic circulation?

	Flow	Resistance	Arterial P
a.	Same	Lower	Lower
b.	Same	Higher	Lower
c.	Higher	Same	Higher
d.	Lower	Lower	Lower
e.	Higher	Higher	Higher

Answer:A

6-Regarding carbon monoxide poisoning, one of the following is TRUE:

- a. Increases firing rate from the peripheral chemoreceptors to the respiratory center
- b. decreases arterial O₂ concentration
- c. Decreases arterial PO₂
- d. can be self-limited disease
- e. as long as PCO₂ arterial is below 1 mmHg, we should not worry.

Answer:B

7-If 1 g of hemoglobin has an oxygen capacity of 1.34 mL of oxygen, what is the oxygen content of blood containing 10 g of hemoglobin when the blood PO₂=40 mmHg?

- a. ≈ 6 mL/dL
- b. ≈ 8 mL/dL
- c. ≈ 10 mL/dL
- d. ≈ 12 mL/dL
- e. Cannot be calculated from the information provided

Answer:C

8-Which of the following decreases oxygen content but does not alter PaO₂ or percentage saturation of hemoglobin?

- a. Ascent to an altitude of 3500 m
- b. Polycythemia (high RBC count)
- c. Breathing 50% oxygen
- d. Anemia
- e. Development of a large right-to-left shunt

Answer:D

9-In normal healthy person, if oxygen is added to inspired air to increase arterial PO₂ from 100 mmHg to 300 mmHg, choose the correct statement

- a. dissolved oxygen will increase three-fold.
- b. the oxygen content of the blood will increase approximately three-fold
- c. the PaN₂ will remain the same
- d. the PaCO₂ will decrease to one third-normal
- e. Increasing arterial PO₂ from 100 mmHg to 300 Hg can correct any form of hypoxia.

Answer:A

10-Which of the following conditions would result in the highest oxygen content per millimeter of blood?

- a. Hemoglobin concentration= 5 PaO₂=90 mmHg
- b. Hemoglobin concentration= 5 PaO₂=500 mmHg
- c. Hemoglobin concentration=3 PaO₂=90 mmHg
- d. Hemoglobin concentration=10 PaO₂=60 mmHg
- e. Hemoglobin concentration=16 PaO₂=28 mmHg

Answer:D

11-Alveolar ventilation normally increases above normal when breathing:

- a. 21 % oxygen and 79 % nitrogen.
- b. 17 % oxygen and 83 % nitrogen.
- c. 2 % carbon dioxide and 98 % oxygen.
- d. 100 % oxygen and 0 % carbon dioxide.
- e. air available in Jordan Valley غور الاردن

Answer:C-deleted-

12-In normal resting individual breathing room air at sea level, voluntary trebling (3x normal) of alveolar ventilation:

- a. raises plasma pH.
- b. raises alveolar PCO₂ .
- c. trebles the partial pressure of oxygen in the alveoli.
- d. raises arterial blood oxygen saturation by 3 %.
- e. raises arterial blood oxygen content by 3 %.

Answer:A

018 MIDTERM

13-The arterio-venous PO₂ difference is the lowest in which of the following organs/tissues (at rest) ?

- a. kidneys
- b. heart
- c. bronchial circulation
- d. brain
- e. skeletal muscles

Answer:A

14-Compared with the systemic circulation, pulmonary circulation has all the following EXCEPT: blood flow.....,vascular resistance.....,arteriolar compliance

- a. Blood flow: Higher, Vascular resistance: higher, Arteriolar compliance: higher
- b. Blood flow: Lower, Vascular resistance: lower, Arteriolar compliance: lower
- c. Blood flow: Same, Vascular resistance: lower, Arteriolar compliance: higher
- d. Blood flow: Same, Vascular resistance: higher, Arteriolar compliance: lower
- e. Blood flow: Same, Vascular resistance: higher, Arteriolar compliance: higher

Answer:C

15-Decreased arterial PO₂ is a consequence of all the following EXCEPT :

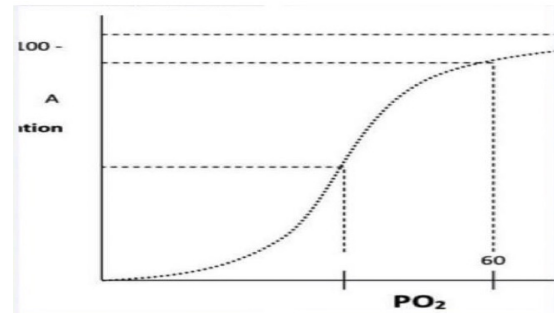
- a. breathing at high altitude .
- b. IRDS
- c. pulmonary edema
- d. COPD
- e. CO poisoning

Answer:E

16-The below is normal oxyhemoglobin dissociation curve; an increase in P50 is seen in one of the following conditions:

- a. reverse Bohr's effect
- b. decreased local temperature
- c. physical exercise
- d. increase plasma pH
- e. fetal hemoglobin

Answer:C



17-A 20-year-old male college student participates in a pulmonary study in his physiology lab. He is healthy and in good physical shape. He is asked to run on a treadmill for 20 minutes at a moderate pace, during which time his arterial PCO₂ is measured. What is his predicted arterial PCO₂ (in mm Hg) ?

- a. 20
- b. 60
- c. 80
- d. 40

Answer:D

18-Alveolar ventilation normally increases a

- a. 18 % oxygen and 80 % nitrogen .
- b. 2 % carbon dioxide and 98 % oxygen .
- c. 21 % oxygen and 79 % nitrogen .
- d. CO poisoning .
- e. breathing at 850m above sea level .

Answer:B

Dentistry Midterm

19-Which of the following sets of differences best describe the hemodynamics of the pulmonary circulation when compared with systemic circulation (in skeletal muscles)?

- a. A
- b. B
- c. C
- d. D
- e. E

	Blood πc	interstitial πc	Vascular Resistance	Pc
A.	Same	Higher	Higher	Lower
B.	Same	Higher	Lower	Lower
C.	Higher	Same	Same	Higher
D.	Lower	Lower	Lower	Lower
E.	Higher	Higher	Higher	Higher

Answer:B

20-In normal individual, regarding gas exchange across pulmonary capillaries during mild exercise, which of the following statements is TRUE?

- a. CO₂ crosses the membrane easier than O₂.
- b. Diffusing capacity of the lung for O₂ is more than for CO₂, the most important factor to play role is the molecular weight of both gases.
- c. The length of capillary required for gas equilibrium is shorter during exercise.
- d. ABGs become grossly abnormal.
- e. Equilibrium across the respiratory membrane is never achieved.

Answer:A

21-If Hb concentration is 7.5 g/dl, and the arterial blood O₂ sat is 98%, what would be the concentration of arterial O₂?

- a. Arterial [O₂] cannot be calculated.
- b. The dissolved O₂ becomes more than the Hb-bound O₂.
- c. There is about 15 ml of oxygen per 100 ml of arterial blood.
- d. Arterial [O₂] equals 10 ml/dl.
- e. When [Hb] equal 7.5 g/dl, the automatically, O₂ Sat never exceeds 50%.

Answer:D

22-Hypoventilation causes one of the following changes in arterial blood gases:

- a. Increase in arterial PO₂, increase in arterial PCO₂, and decrease pH
- b. Increase in arterial PO₂, decrease in arterial PCO₂, and increase pH
- c. Decrease in arterial PO₂, decrease in arterial PCO₂, and increase pH
- d. Increase arterial PO₂, no change in arterial PCO₂, and increase pH
- e. Decrease in arterial PO₂, increase in arterial PCO₂, and decrease pH

Answer:E

23-In diving, divers first hyperventilate before they go into water. This hyperventilation allows one to hold one's breath for a longer period of time, because hyperventilation:

- a. Make alveolar air full of O₂ which divers can use while diving
- b. Decreases the pH of systemic arterial blood
- c. Increases brain blood flow
- d. Increases the oxygen reserve of systemic arterial blood
- e. Decreases the PCO₂ of systemic arterial blood

Answer:E

24-In a normal person breathing 42% oxygen at rest for 10 minutes.

- a. Pulmonary vascular resistance is more at rest compared to exercise.
- b. This person's mixed expired PCO_2 decreases.
- c. The entire lung becomes zone (1)
- d. Mixed venous $[O_2]$ increases significantly.
- e. O_2 extraction ratio is about 42%

Answer:B

25-In normal person at rest, which of the following decreases arterial PO_2

- a. Polycythemia (high RBC count)
- b. CO poisoning
- c. Breathing 50% oxygen
- d. Anemia
- e. Ascent to an altitude of 3500 m

Answer:E

PP Collected Questions

26- When will be happen to the partial pressures of O₂ and CO₂ when ascending to high altitude:

- (a) PO₂ increases, and PCO₂ increases
- (b) PO₂ increases, and PCO₂ decreases
- (c) PO₂ decreases, and PCO₂ increases
- (d) PO₂ increases, and PCO₂ doesn't change
- (e) PO₂ decreases, and PCO₂ decreases

27- During CO poisoning, all of the following are false, EXCEPT:

- (a) Increase in PaCO₂
- (b) Decrease in PaO₂
- (c) Decrease in O₂ saturation
- (d) Decrease in pH
- (e) Should not be considered dangerous unless CO is < 1 mmHg

28-The following set of data is for a person ventilation at sea level. Which of the following lines contains an error:

- (a) Renal venous blood >40 <45
- (b) High ventilation/perfusion ratio >100 <40
- (c) Mild exercise 95 40
- (d) Interstitial fluid of carotid bodies >40 <45
- (e) Last portion of expired air >100 <40

29-gas-blood technician took an arterial blood sample from a patient. Before he measures the arterial pressures of oxygen and carbon dioxide, he pulls the syringe and draws a little amount of atmospheric air into the syringe. What will the readings of this patient be:

- (a) Higher than normal PO₂, and higher than normal PCO₂
- (b) Lower than normal PO₂, and lower than normal PCO₂
- (c) Higher than normal PO₂, and lower than normal PCO₂
- (d) Lower than normal PO₂, and higher than normal PCO₂
- (e) Normal value of PO₂, and normal value of PCO₂

30- Pulmonary edema due to CHF (congestive heart failure) is due to:

- (a) Increased pulmonary capillary hydrostatic pressure
- (b) Increased pulmonary colloidal osmotic pressure
- (c) Decreased pulmonary interstitial hydrostatic pressure
- (d) Decreased pulmonary interstitial osmotic pressure
- (e) Increased pulmonary interstitial hydrostatic pressure

26.e 27.b 28.e 29.c 30.a

31- Regarding the O₂-dissociation curve, a shift of the curve of the LEFT:

- (a) Increases the P_{50O₂}
- (b) Decreases affinity of Hb for oxygen
- (c) Less oxygen passes from the blood to the tissues
- (d) Occurs during exercise
- (e) Caused by high temperature

32-A person carried out a few tests and found out that the O₂ saturation in the blood has decreased while the PaO₂ remained normal. This might be due to:

- (a) Anemia
- (b) CO poisoning
- (c) Hypoventilation
- (d) Fibrosis
- (e) Exercise

33-Increasing the alveolar ventilation voluntarily 3X the normal level will cause

- a) Increase in plasma pH
- (b) Decrease in plasma pH
- (c) Activation of chemosensitive area
- (d) Collapse of peripheral alveoli
- (e) Loss of consciousness

34-hyperventilation can result from:

- a- increase alveolar P_{co2}
- b- increase alveolar P_{o2}
- c- decrease arterial P_{co2} below 30 mmHg
- d- direct stimulation of central chemosensitive receptors due to increase PH
- e- a decline of arterial P_{o2} from 100 mmHg to 70 mmHg

35-which of the following is most accurate about airway pressure, referring to upper airways:

- a- at the end of expiration it is 4 to 5 mmHg above atmospheric pressure
- b- at the end of expiration is equal to atmospheric pressure
- c- atmospheric during all the breathing cycle.

36-A patient with anemia has which of the following?

- A. A normal arterial blood O₂ content
- B. Arterial PO₂ of 99 mmHG
- C. A decreased venous blood PO₂
- D. Hyperventilation
- E. Cyanosis

31.c 32.b 33.a 34.a 35.b 36.c

37-patient suffering from chronic respiratory failure

- A. Shows an increased respiratory sensitivity to CO₂
- B. His ventilation doesn't increase in response to decreased O₂
- C. Should be given 100% O₂ on admission to hospital
- D. Must have been given O₂ if his pCO₂ greatly increased
- E. Shows an increased blood pH

38-A patient has the following arterial blood values:

pH=7.52 pCO₂=20 mmHg HCO₃⁻=16 mEq/L. He most likely:

- A. Hypo-ventilating
- B. Has an acid base disorder caused by over-production of fixed acid
- C. Has a respiratory alkalosis
- D. Has a complete respiratory compensation
- E. Has renal compensation that causes his arterial HCO₃⁻ to increase

39-Oxygen therapy is of great benefit in which of the following types of hypoxia:

- A. Hypoxia caused by anemia
- B. Hypoxia caused by circulatory deficiency
- C. Shunting of un-oxygenated venous blood past the lungs
- D. Tissue metabolic enzyme system is incapable of using O₂
- E. Hypoxia caused by impaired alveolar membrane diffusion

40-All of the following parameters are decreased on ascending to high altitude except:

- A. Arterial pO₂
- B. Alveolar air pCO₂
- C. Hb % saturation
- D. Systemic arterial pH
- E. Arterial O₂ content

41-Which of the following statements about the transport of O₂ & CO₂ by the blood is true:

- A. Most CO₂ is transported in the dissolved form
- B. The % saturation of hemoglobin with O₂ will increase if the arterial pCO₂ is increased
- C. A decrease in the % saturation of hemoglobin with O₂ increases CO₂ transport
- D. In anemia both arterial pO₂ and O₂ content are decreased
- E. The reduced arterial pO₂ in an individual living at high altitude is due to impairment in O₂ diffusion

37.d 38.c 39.e 40.d 41.c

42-in an individual the ventilation didn't increase when the inspired $p\text{CO}_2$ was increased, but decreased during increased inspired $p\text{O}_2$.

Which of the following is most likely the cause for this response in ventilation:

- A. Dysfunctional central chemoreceptors
- B. Hypersensitivity of the peripheral chemoreceptors
- C. Bronchial muscle spasm
- D. Diaphragmatic fatigue
- E. Normal functioning of the central and peripheral chemoreceptors

43-Which of the following is true when PO_2 is decreased?

- A. pulmonary arteries constrict while systemic arteries dilate
- B. pulmonary arteries dilate while systemic arteries constrict
- C. Both pulmonary arteries and systemic arteries constrict
- D. Both pulmonary arteries and systemic arteries dilate

44-The oxygen dissociation curve of normal adult hemoglobin is most effectively shifted to the right by:

- a. Mixing with fetal hemoglobin
- b. Increased 2,3-bisphosphoglycerate (BPG)
- c. Cooperative binding of oxygen
- d. Increased PH
- e. Decreased CO_2

45- Methemoglobin is converted to functional hemoglobin by the enzyme:

- a. Dismutase
- b. Reductase
- c. Oxidase
- d. Catalase
- e. Peroxidase

46-The principle buffer in erythrocyte is:

- a. Bicarbonate
- b. Oxyhemoglobin
- c. Acetate
- d. Phosphate
- e. Deoxyhemoglobin

47- Carbon monoxide can lead to hypoxia , by:

- a. Changing the Hb conformation
- b. Increasing the level of methemoglobin in blood
- c. Competitively binding at heme iron site
- d. Acting as allosteric inhibitor for Hb
- e. Oxidizing heme iron in Hb

42.a 43.a 44.b 45.b. 46.e 47.c

48-Suppose the O₂ binding curve for hemoglobin becomes hyperbolic instead of sigmoidal, which of the following hemoglobin properties will be more seriously affected by this change?

- a. Affinity of O₂ binding in the lung
- b. Affinity of CO₂ binding in the tissue
- c. Affinity of H⁺ binding in the tissue
- d. Oxygen delivery from Hb to myoglobin in muscles
- e. Affinity of 2,3-bisphosphoglycerate binding in the tissues

49-Stimuli or conditions that would tend to increase ventilation include :

- a . Lower than normal blood PCO₂
- b . Higher than normal blood PH
- c. Breathing carbon monoxide
- d. Iron- deficiency anemia
- e . Breathing air with reduced PO₂

50- Breathing :

- a. Is not dependent on nervous impulses
- b. Is a chemical process by definition
- c. Depends on the ability of cells to oxidize materials .
- d. Is best described as mechanical process
- e. Cannot be voluntary controlled

51-In the chloride shift, chloride ions exchange place with :

- a .Bicarbonate ion
- b . Sodium ions
- c . Potassium ions
- d . hydrogen ions
- e . Hemoglobin

52-Rapid forced breathing:

- a. Is called hyperventilation
- b. Induced a state of alkalosis
- c. Induces a state of acidosis
- d. A and B are correct
- e. A and C are correct

53-Regarding maximum oxygen consumption "VO₂max" in normal individual, all the following are true; EXCEPT:

- A. is mainly limited by the lungs.
- B. can be doubled by training (more muscle exercise).
- C. is more important in weight lifters than in long-distance runners
- D. is genetically determined.
- E. cannot be measured in human being

48.c 49.e 50.d. 51.a 52.d. 53.d

54-The following table of normal values (at sea level) contains one error. This error appears in which line.

- A. pulmonary venous blood 100 40
- B. alveolar air with high V/Q ratio >100 <40
- C. arterial blood during exercise < 90 >40
- D. pulmonary arterial blood 40 45
- E. mixed expired air >100 < 40


55-In standing normal individual at rest, compared to skeletal muscle capillaries, pulmonary capillaries have:

- A. continuous blood flow in the entire capillary bed (base and apex)
- B. more capillary blood oncotic pressure
- C. less capillary blood oncotic pressure
- D. less capillary hydrostatic pressure
- E. more blood volume

56-Blood gas measurements in a hypoxic patient indicate that the patient's systemic arterial oxygen concentration is normal and his systemic venous oxygen content is higher than normal. This is characteristic of:

I think this question is related to mid material, just read it & make sure you understand the idea & the options ✨

- A. diffusion limitation
- B. right-to-left shunt (mixing venous blood with arterial blood)
- C. pulmonary ventilation/perfusion mismatch
- D. anemic hypoxia (low Hb concentration)
- E. histotoxic hypoxia (septicemia)

 Remember :

histotoxic hypoxia : the mitochondria aren't able to use O₂ although O₂ is available, like in septicemia where the toxins poison the mitochondrial chain, or like cyanide poisoning

57-Peripheral chemoreceptors:

- a) Respond only to increased/decreased H⁺
- b) Respond only to low O₂.
- c) Stimulated by carbon monoxide
- d) Having the lowest arterio-venous O₂ difference in our body
- e) Aortic bodies innervated by glossopharyngeal nerve

58- In the adult, one of the following is NOT different between the systemic and pulmonary circulation?

- a) Volume of blood flowing through it
- b) Vascular resistance
- c) Capillary hydrostatic pressure
- d) P_s (systolic arterial pressure)
- e) Pulse pressure

54.c. 55.d 56.e 57.d 58.a

59-For a normal Hb-O₂ dissociation curve, the most correct relationship is:

- a) PaO₂ 40 mmHg, SaO₂ 40%
- b) PaO₂ 26 mmHg, SaO₂ 26%
- c) PaO₂ 60 mmHg SaO₂ 90%
- d) PaO₂ 120 mmHg, SaO₂ 120% -
- e) PaO₂ 70 mmHg, SaO₂ 40%

60-If blood Hb is 10 g/dL, PaO₂ is 100 mm Hg, and hemoglobin is 50% saturated with oxygen, the volume of oxygen contained in 100 ml of blood is approximately:

- a) 5.6 ml
- b) 6.7 ml
- c) 9.5 ml
- d) 19.5 ml
- e) Cannot be calculated from the above data

61-Which of the following would shift HB-O₂ to the left?

- a) Exercise
- b) HbF
- c) Increase alveolar PCO₂
- d) Whenever P₅₀ increases.
- e) Hypoventilation

62- Arterial PO₂ is reduced in

- a) Pulmonary edema
- b) Histotoxic hypoxia
- c) Anemia
- d) CO poisoning
- e) Descending to Dead Sea area

63- Alveolar oxygen tension (PAO₂) is influenced by all the following EXCEPT:

- a) Atmospheric pressure
- b) Fraction of oxygen in inspired air (F_iO₂)
- c) Hemoglobin concentration in the blood
- d) Oxygen consumption
- e) V/Q ratio

64- At high altitude the following changes take place EXCEPT:

- a) Increase alveolar PCO₂
- b) Increase ventilation
- c) Increase respiratory rate
- d) Increase in O₂ carrying capacity of blood
- e) Decrease alveolar PO₂

59.c 60.b 61.b 62.a 63.c 64.a

65-During mild exercise:

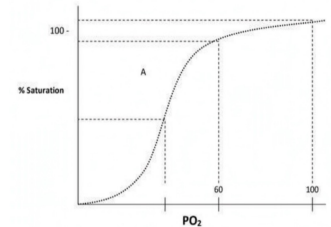
- a) PaO₂ declines
- b) PaCO₂ increases
- c) O₂ consumption reaches its maximum (VO₂max)
- d) Whole body arteriovenous oxygen concentration difference increases.
- e) The time an RBC stays in the pulmonary capillary remains the same

66-Regarding pulmonary vascular resistance, all the following are true EXCEPT:

- a) Is minimal at FRC
- b) Increases when lung volume is above FRC
- c) Increases when lung volume is below FRC
- d) Is less than TPR (total peripheral resistance)
- e) Increases during exercise

67-Which of the following is INCORRECT regarding the oxyhemoglobin curve?

- a. higher P₅₀ than normal means that the O₂ binds less tightly to Hb.
- b. HbF is normally shifted to the left
- c. An increase in PCO₂ causes a right shift.
- d. An increase in blood pH increases P₅₀.
- e. An increase in temperature shifts the O₂ uptake curve to the right



68- Patient with no respiratory problems is given blood transfusion, which of the following will occur?

- A. arterial PO₂ will increase
- B. arterial PCO₂ will decrease
- C. arterial saturation will increase
- D. arterial O₂ content will increase

69-In diving, divers first hyperventilate before they go into water. This hyperventilation allows one to hold one's breath for a longer period of time, because hyperventilation:

- a. increases the oxygen reserve of systemic arterial blood
- b. decreases the PCO₂ of systemic arterial blood
- c. decreases the pH of systemic arterial blood
- d. increases brain blood flow

70-Regarding carbon monoxide poisoning, one of the following is TRUE:

- a. Increases firing rate from the peripheral chemoreceptors to the respiratory center
- b. decreases arterial O₂ concentration
- c. Decreases arterial PO₂
- d. can be self-limited disease
- e. as long as PCO arterial is below 1 mmHg, we should not worry.

65.c 66.e 67.d 68.d 69.b

71-If 1 g of hemoglobin has an oxygen capacity of 1.34 mL of oxygen, what is the oxygen content of blood containing 10 g of hemoglobin when the blood $PO_2=40$ mmHg?

- a. ≈ 6 mL/dL
- b. ≈ 8 mL/dL
- c. ≈ 10 mL/dL
- d. ≈ 12 mL/dL
- e. Cannot be calculated from the information provided

72- Which of the following decreases oxygen content but does not alter PaO_2 or percentage saturation of hemoglobin?

- a. Ascent to an altitude of 3500 m
- b. Polycythemia (high RBC count)
- c. Breathing 50% oxygen
- d. Anemia
- e. Development of a large right-to-left shunt

73-In normal healthy person, if oxygen is added to inspired air to increase arterial PO_2 from 100 mmHg to 300 mmHg, choose the correct statement

- a. dissolved oxygen will increase three-fold.
- b. the oxygen content of the blood will increase approximately three-fold
- c. the PaN_2 will remain the same
- d. the $PaCO_2$ will decrease to one third-normal
- e. Increasing arterial PO_2 from 100 mmHg to 300 Hg can correct any form of hypoxia.

74- Which of the following conditions would result in the highest oxygen content per millimeter of blood?

- a. Hemoglobin concentration= 5 $PaO_2=90$ mmHg
- b. Hemoglobin concentration= 5 $PaO_2=500$ mmHg
- c. Hemoglobin concentration=3 $PaO_2=90$ mmHg
- d. Hemoglobin concentration=10 $PaO_2=60$ mmHg
- e. Hemoglobin concentration=16 $PaO_2=28$ mmHg

75-Which of the following will return toward normal few weeks following ascending to high altitude (and stay at the top of the mountain)?

- a. Arterial hydrogen ion concentration
- b. Arterial carbon dioxide tension
- c. Arterial bicarbonate ion concentration
- d. Arterial hemoglobin concentration
- e. Alveolar ventilation

71.c 72.d 73.a 74.e 75.a

76- Which of the following is most likely cause of a high arterial PCO₂?

- a. Increased metabolic activity during exercise
- b. Increased alveolar dead space volume
- c. Depressed medullary respiratory centers
- d. Alveolar capillary block
- e. Increased alveolar ventilation

77- Which of the following shifts the oxyhemoglobin curve to the left?

- a. Increased temperature
- b. Exercise
- c. Hyperventilation
- d. Metabolic acidosis

78- Which of the following has to be less in the fetus than in the mother?

- a. PaCO₂
- b. Pulmonary vascular resistance
- c. Affinity to hemoglobin
- d. PaO₂
- e. Arterial hydrogen ion concentration

79- Hyperventilation can result from:

- a- increase alveolar P_{co2}
- b- increase alveolar P_{o2}
- c- decrease arterial P_{co2} below 30 mmHg
- d- direct stimulation of central chemosensitive receptors due to increase PH
- e- a decline of arterial P_{o2} from 100 mmHg to 70 mmHg

76.c 77.c 78.d 79.a

- Something would decrease Hb O₂ saturation without changing blood pO₂ – CO poisoning
- question about bicarbonate and CO₂ values: plasma pH remain same
- People living in Andes (high altitude) decreases: CSF bicarbonate level
- main stimulus for magnitude of ventilation under normal condition: H⁺ in central chemoreceptors
- Changes in hyperventilation, which is correct: high PO₂, low PCO₂, constant PH₂O
- when the concentration of Hb becomes 60% the result: normal po₂ lower co₂
- a boy suffered hyperventilation after breathing in a bag for 2-3 min... which of the following drive this... increased systemic Pco₂
- in high altitude which of the following drives hyperventilation: hypoxia in the peripheral blood peripheral chemo-receptors are stimulated when the patient suffers from hypoxia
- you are at 800 m above the sea level, which of the following points represent the condition regarding mixed venous blood: 40mmHg (75% O₂ sat.)
- wrong about pulmonary vascular resistance: Decreased when ascending to high altitude.
- Hb=10g/dL and Oxygen content=6.7g/dL, then oxygen saturation is: 50%.
- wrong about fetal hemoglobin: It binds more to 2,3-BPG than Hb-A.
- anemia: Normal PO₂, normal O₂ saturation and low oxygen content.
- does not decrease P₅₀: 40% oxygen.
- at high altitude: Low HCO₃⁻
- room air, PCO₂=48, then PO₂= 90mmHg.
- asthmatic patient with PO₂=60mmHg and PCO₂=30mmHg: low PCO₂ because of hypoxia induced hyperventilation.
- low HCO₃⁻ and low PCO₂: Ascending to high altitude.

- what happens to arterial blood gases after a period of hyperventilation: increase P_{O_2} , decrease P_{CO_2} , no change P_{H_2O}
- which of the following is most likely to occur following carbon monoxide poisoning? decrease arterial oxygen content.
- Causes increased arterial PCO_2 – suppressed medullary centers
- Few days after acclimatization to a high altitude – arterial hydrogen tends to return to normal
- A person with normal ventilation and lung perfusion had a right pulmonary artery embolism, most likely alveolar gases – $PO_2 = 125$ $PCO_2 = 20$
- Inspiring room air with alveolar PCO_2 of 48, alveolar PO_2 is – 90mmHG
- Why divers hyperventilate before holding breath under water – because arterial PCO_2 is decreased
- True about asthmatic patient with rapid breathing and ABGs of 60 PO_2 and 20 PCO_2 – his PCO_2 is low because hypoxemia induced hyperventilation
- In the O_2 -Hb dissociation curve, what would decrease P_{50} – hyperventilation
- People living in Andes (high altitude) decreases: CSF bicarbonate level
- In high altitudes all decrease except: O_2 carrying capacity
- Alveolar O_2 tension is affected by all of the following factors except? Hb conc.
- Wrong about pulmonary vascular resistance: Increased during exercise
- what do systemic and pulmonary circulation have in common: Same blood volume (not pressure or resistance)
- one wrong about remodeling: muscle contraction
- Which of the following will decrease Hb saturation? low PH + increase CO_2 + 2.3dbg
- "As temperature goes up in a volume of gas, the volume rises proportionately". This law is... : Charles's Law
- What happens to arterial blood gases after a period of hyperventilation: increase P_{O_2} , decrease P_{CO_2} , no change in P_{H_2O}

- Alveolar capillary block can be evaluated by: Diffusion capacity of the lung (Diffusion capacity of CO)
- During moderate exercise pulmonary vascular resistance: decrease
- Hyperventilation allows one to hold his breath for a longer period of time because: hyperventilation removes CO₂ (does not add more O₂)
- What limits PO₂ of the lungs: CVS
- A person ascended to a top of a mountain where the atm p. is below 9 -> Hypoxia and hypocapnia <40 (ventilating too much washing out CO₂)
- Which of the following conditions would be expected to stimulate the arterial chemoreceptors? Hypoxia due to ascending to high altitudes.
- 9YO patient decided to find out how long he could breathe into and out of a bag, after 2 mins his friends noticed that he was breathing very rapidly and forced him to stop, what is the cause of hyperventilation? Increased PaCO₂
- Acute hemorrhage causes reduction in Hb to 60% in otherwise healthy individual the alveolar ventilation and the O₂ consumption rates remain the same as before the hemorrhage, which of the following will occur after the hemorrhage? Normal arterial PO₂, low venous PO₂.
- Doesn't happen during exercise: increased alveolar ventilation but not anatomic dead space ventilation
- A male with 7.5g/dl Hb, the point most representative of his oxygen content is: at pO₂, O₂ content is 10ml/dl
- An athlete who has received blood transfusion, correct about his O₂ and Hb – [Hb] increases, pO₂ unchanged, O₂sat unchanged, O₂ content increased
- Wrong about CO₂ transport – plasma HCO₃⁻ enters RBC in exchange with Cl-

اللهم افتح لنا أبواب حكمتك، واكتب لنا من رحمتك، وامن علينا بالحفظ والفهم، سبحانه لا علم لنا إلا ما علمتنا
 إنك أنت العليم الحكيم
 اذكرونا بدعوة ✨