



# Test Bank



**Subject:**  
**RS-Mid017**



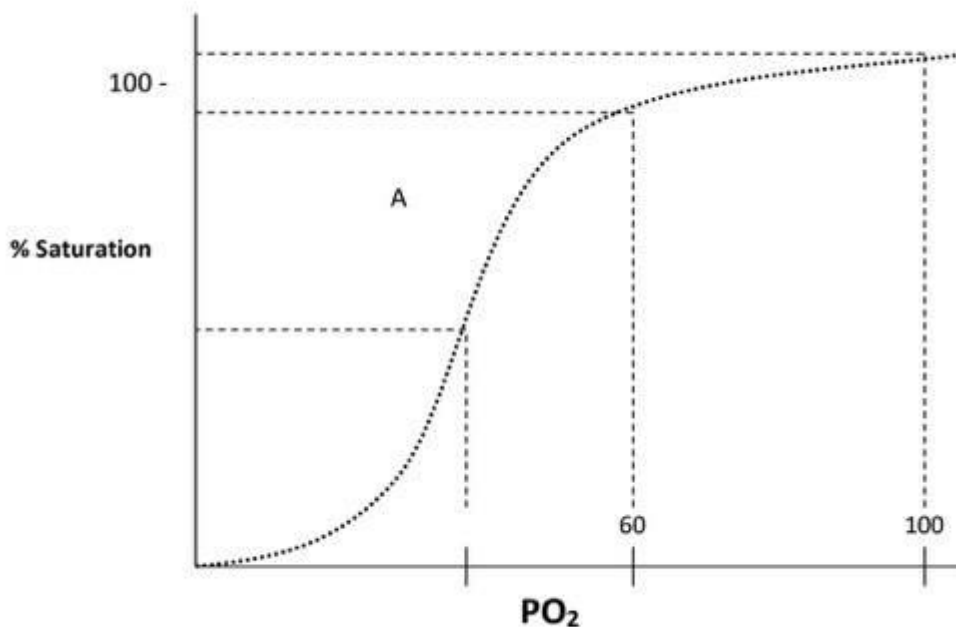
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## Physiology

1-All the following laboratory values are consistent with pulmonary fibrosis EXCEPT?

- a. Increased residual volume
- b. Increased vascular resistance
- c. Normal or above normal FEV<sub>1</sub>/FVC
- d. Decreased lung compliance
- e. Normal or above normal peak expiratory flow (corrected for lung volume)



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

- a. higher P<sub>50</sub> than normal means that the O<sub>2</sub> binds less tightly to Hb.
- b. HbF is normally shifted to the left
- c. An increase in PCO<sub>2</sub> causes a right shift.
- d. An increase in blood pH increases P<sub>50</sub>.
- e. An increase in temperature shifts the O<sub>2</sub> uptake curve to the right.

3-Regarding gas exchange across pulmonary capillaries, which of the following statements is FALSE?

- a. The length of capillary required for gas equilibrium is longer during exercise.
- b. In anemic person, DLCO is less than normal.
- c. At rest, equilibrium is usually reached at 50% of the capillary length
- d. CO<sub>2</sub> crosses the membrane easier than O<sub>2</sub>.
- e. considering the diffusing capacity of the lung for different gases, the least important factor to play role is the molecular weight of the gas.

4-In a normal person breathing room air at sea level at rest (in standing position).

All the following statements are true EXCEPT?

- a. Dead space accounts for almost one third of the tidal volume
- b. Volume of anatomic dead space ÷ volume of physiologic dead space is equal or greater than 1.0
- c. Mixed venous [O<sub>2</sub>] is 15 ml/dl blood
- d. Physiologic dead space is greatest at the lung apex
- e. Compliance is greatest at the lung base.

5-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 PCO<sub>2</sub> of systemic arterial blood
- c. decreases the pH of systemic arterial blood
- d. increases brain blood flow
- e. make alveolar air full of O<sub>2</sub> which divers can use while diving

6-Which of the following is NOT true at FRC?

- a. It is about 75% TLC.
- b. The elastic recoil of the chest wall is outward.
- c. The elastic recoil of the lung is inward.

- d. The lung-thorax system is at rest.
- e. pulmonary vascular resistance is the lowest

7-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 PaO<sub>2</sub> and PaCO<sub>2</sub> will be higher than the patient's actual values
- b. The measured values of both PaO<sub>2</sub> and PaCO<sub>2</sub> will be lower than the patient's actual values
- c. The measured PaO<sub>2</sub> will be higher and the measured PaCO<sub>2</sub> will be lower than the patient's actual blood gas values
- d. The measured PaO<sub>2</sub> will be lower and the measured PaCO<sub>2</sub> will be higher than the patient's actual blood gas values
- e. The measured values of PaO<sub>2</sub> and PaCO<sub>2</sub> will accurately reflect the actual values

8-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.

9-Regarding dead space, choose the FALSE statement

- a. is defined as the volume of gas which does not take part in gas exchange
- b. physiological dead space is the same as alveolar dead space
- c. physiological dead space is measured by measuring mixed expiratory PCO<sub>2</sub>
- d. mechanical ventilation (respirator) increases dead space volume.
- e. increases whenever V/Q ratio is increased

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

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

11-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 O<sub>2</sub> concentration
- c. Decreases arterial PO<sub>2</sub>
- d. can be self-limited disease
- e. as long as PCO<sub>2</sub> arterial is below 1 mmHg, we should not worry.

12-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<sub>2</sub>=40 mmHg?

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

13-Which of the following decreases oxygen content but does not alter PaO<sub>2</sub> 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

14-In normal healthy person, if oxygen is added to inspired air to increase arterial PO<sub>2</sub> 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<sub>2</sub> will remain the same
- d. the PaCO<sub>2</sub> will decrease to one third-normal
- e. Increasing arterial PO<sub>2</sub> from 100 mmHg to 300 Hg can correct any form of hypoxia.

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

- a. Hemoglobin concentration= 5 PaO<sub>2</sub>=90 mmHg
- b. Hemoglobin concentration= 5 PaO<sub>2</sub>=500 mmHg
- c. Hemoglobin concentration=3 PaO<sub>2</sub>=90 mmHg
- d. Hemoglobin concentration=10 PaO<sub>2</sub>=60 mmHg
- e. Hemoglobin concentration=16 PaO<sub>2</sub>=28 mmHg

16-According to the Law of Laplace, small alveoli don't coexist with large alveoli at the same region. 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 (alveoli support each other's =alveolar interdependency)
- c. Intrapleural pressure is lower (more negative) for smaller alveoli, allowing them to stabilize in comparison to the bigger ones.
- d. Surface tension increases as alveolar surface area increases.
- e. surfactant makes surface tension volume-dependent

17-Which of the following is NOT true concerning respiratory distress syndrome in premature infants?

- a. Their ability to synthesize surfactant is limited.
- b. Higher pressures are required to ventilate the lungs.
- c. Lung compliance is low.
- d. Positive pressure respirators are often used to assist them in breathing.
- e. Alveoli tend to overexpand and sometimes burst at the end of inspiration.

18. 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 الأردن)

19-Which of the following is FALSE concerning the closing volume for the lung?

- a. Measured using the single breath N<sub>2</sub> washout curve.
- b. Marks the point where the alveoli at the apex close.
- c. Marks a sudden increase in nitrogen concentration in the expelled breath.
- d. Marks when the overinflated, poorly ventilated alveoli at the apex expel their air with high N<sub>2</sub> concentrations.
- e. It increases in smokers and in chronic bronchitis

20-If respiratory minute ventilation and rate of CO<sub>2</sub> production are kept constant, the arterial PCO<sub>2</sub> can be reduced by increasing:

- a. functional residual capacity.
- b. FiO<sub>2</sub> (fraction of inspired O<sub>2</sub>)
- c. breathing frequency.
- d. tidal volume.
- e. local temperature

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

- a. raises plasma pH.
- b. raises alveolar PCO<sub>2</sub> .
- 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 %.

### Answers

1	A	8	C	15	D
2	D	9	B	16	C
3	C	10	A	17	E
4	B	11	B	18	C <sub>(deleted)</sub>
5	B	12	C	19	B <sub>(from sheet 7)</sub>
6	A	13	D	20	D <sub>(deleted)</sub>
7	C	14	A	21	A

### Anatomy

1-Which of these muscles causes closure of rima glottidis in case of recurrent laryngeal nerve injury?

- a. Lateral crico-arytenoid muscle
- b. Transverse arytenoid muscle
- c. Posterior crico-arytenoid muscle
- d. Vocalis muscle

2-After suffering from sinusitis, an oral fistula is formed with :

- a. Maxillary sinuses
- b. Frontal sinuses
- c. Ethmoidal sinuses
- d. Sphenoidal sinuses



3-Which of the following is incorrect about the right pulmonary artery?

- a. It originates from pulmonary trunk at sternal angle level
- b. It is longer than the left one
- c. It is related anteriorly to the SVC and ascending aorta

4-The post ganglionic parasympathetic innervation to lacrimal gland is through:

- a. Greater palatine nerve
- b. Zygomaticotemporal nerve
- c. Long sphenopalatine nerve

5-Which of the following is false regarding secondary bronchi?

- a. They have complete muscular layer
- b. Cartilage plates gradually disappear
- c. Goblet cells are rarely seen

6-All of the following are present in the olfactory region EXCEPT:

- a. Bipolar cells
- b. Bowman serous gland
- c. Von Ebner gland
- d. Basal cells

7-A needle in the left ninth intercostal space at mid-axillary line wouldn't affect:

- a. Diaphragm
- b. Spleen
- c. Lung
- d. Pleura
- e. Peritoneum

8-All of the following are lined with by pseudostratified columnar epithelium with goblet cells except:

- a. Olfactory region

- b. Terminal bronchioles
- c. Posterior surface of epiglottis
- d. False vocal cord

9-Which of the following is not found in the respiratory membrane?

- a. Surfactant layer
- b. Type I pneumocyte
- c. Type II pneumocyte
- d. Endothelial cell
- e. Fused basal lamina

10-Oligohydramnios is associated with:

- a. Ectopic lung lobes
- b. Lung hypoplasia
- c. Lung agenesis
- d. ARDS

11-Which of the following is false regarding respiratory distress syndrome?

- a. Thyroxine is the most important stimulator of surfactant production
- b. It causes collapsing of the alveoli
- c. It accounts for 2% of deaths in neonates

12-Greater palatine artery is a branch of:

- a. Maxillary artery in pterygopalatine fossa
- b. Anterior ethmoidal artery
- c. Facial artery
- d. Maxillary artery in lateral nasal wall

### ANSWERS

<b>1</b>	<b>C</b>	<b>5</b>	<b>C</b>	<b>9</b>	<b>C</b>
<b>2</b>	<b>A</b>	<b>6</b>	<b>C</b>	<b>10</b>	<b>B</b>
<b>3</b>	<b>A</b>	<b>7</b>	<b>C</b>	<b>11</b>	<b>C</b>
<b>4</b>	<b>B</b>	<b>8</b>	<b>B</b>	<b>12</b>	<b>A</b>

## Microbiology

1-Which of the following toxins can cause scarlet fever?

- a. DNase
- b. Streptolysin S
- c. Hyalinas
- d. C5a protease
- e. Erythrogenic toxin

2-Which of the following statements concerning antigenic drift in influenza viruses is correct?

- a. It results in major antigenic changes
- b. It is exhibited only by influenza A viruses
- c. It is caused by frameshift mutations in viral genes
- d. It results in new subtypes over time
- e. It affects predominantly the matrix protein

3-Highly pathogenic H5N1 avian influenza HPAI can infect humans with a high mortality rate, but it has not yet resulted in pandemic. The following are characteristics of HPAI, except for one. Which one is not?

- a. Efficient human-to-human transmission
- b. Presence of avian influenza genes
- c. Efficient infection of domestic poultry
- d. Contains segmented RNA genome
- e. Both high pathogenicity and low pathogenicity avian influenza viruses can cause disease in human beings

4-All of the following are true about *S. pyogenes* except:

- a. Can't be diagnosed by smear
- b. Available vaccine against its capsule
- c. Treated by penicillin with no resistance
- d. The capsule is an important virulence factor

ANSWERS

1	E	3	A
2	D	4	B

*Good Luck!!*