

Respiratory Physiology MCQs

1) The primary function of the respiratory system is:

- A. Synthesis of surfactant
- B. Lysis of blood clots
- C. Gas exchange
- D. Defense against foreign particles
- E. Blood reservoir.

2) The only structures that allow gas diffusion across them are the

- A. Bronchioles
- B. Alveoli
- C. Alveolar ducts
- D. Bronchi
- E. Elastic lung tissues

3) The nose serves all the following functions EXCEPT:

- A. Trapping of foreign particles of a size of 2 μ
- B. Warming and humidifying the air
- C. Cleansing the air
- D. As a passageway for air movement

4) Which of the following anatomical structures is *not* part of the conducting zone?

- A. Pharynx
- B. Nasal cavity
- C. Alveoli
- D. Bronchi

5) Which of the following is not a metabolic function of the respiratory system:

- A. Phagocytosis of foreign particles by PAMs
- B. Secretion of surfactant
- C. Activation of angiotensin
- D. Inactivation of bradykinins
- E. Fibrinolytic activity.

6) Metabolic functions of the lung include all of the following EXCEPT

- A. Inactivation of bradykinin
- B. Inactivation of prostaglandins
- C. Inactivation of angiotensin II
- D. Synthesis of prostaglandins
- E. Synthesis of surfactant

7) Which one of the following is activated in the lung

- A. Histamine
- B. Angiotensin
- C. Norepinephrine
- D. Bradykinin
- E. Prostaglandins

8) Substances metabolized by the lung include all except

- A. Serotonin
- B. Norepinephrine
- C. Acetylcholine
- D. Surfactant
- E. Bradykinin

9) Substances synthesized by the lung include all of the following except

- A. Some prostaglandins
- B. Histamine
- C. Angiotensin
- D. Surfactant

10) Substances cleared from the circulation by the lungs include all except

- A. Angiotensin II
- B. Serotonin
- C. Blood clots
- D. Bradykinin
- E. Prostaglandin

11) The functions of lung does not include:

- A. Blood reservoir
- B. Blood filter
- C. Activation of angiotensin I
- D. Synthesis of a phospholipids substance
- E. Synthesis of serotonin

12) Vasoactive substances inactivated in the lung does not include:

- A. Bradykinin
- B. Serotonin
- C. Noradrenaline
- D. Prostaglandin
- E. Surfactant

13) Functions of the lung include all of the following except

- A. Synthesis of a phospholipid substance
- B. Secretion of tissue plasminogen activator
- C. Carbohydrate metabolism
- D. Inactivation of bradykinin
- E. Removal of chemicals from pulmonary circulation

14) All the followings steps are external respiration EXCEPT:

- A. Mass movement of air between atmosphere and lungs
- B. Diffusion of gases across the respiratory membrane
- C. Intracellular utilization of oxygen
- D. Transport of gases in blood
- E. Gas exchange between blood and tissues.

15) Which of the body systems listed below cooperate to supply O₂ to cells and eliminate CO₂?

- 1) Digestive system 2) cardiovascular system 3) urinary system
 - 4) Respiratory system 5) endocrine system
- A. 3, 5
 - B. 2, 4
 - C. 1, 2
 - D. 1, 2, 4

16) Between breaths the intra-alveolar pressure is:

- A. +1 mmHg.
- B. 0 mmHg.
- C. -1 mmHg.
- D. - 4 mmHg .
- E. - 6 mmHg.

17) During expiration, the intra-alveolar pressure is

- A. Lower than the pleural pressure.
- B. Greater than the barometric pressure.
- C. Lower than the barometric pressure.
- D. Unchanged.

18) The alveolar pressure of a normal 77-year-old woman is approximately +1 cm H₂O during expiration. What is the alveolar pressure during inspiration (in cm H₂O)?

- A. +0.5
- B. +1
- C. +2
- D. 0
- E. -1

19) Intrapleural pressure is:

- A. The pressure caused by air in the intrapleural space
- B. Is always higher than atmospheric pressure
- C. Equalizes itself with intraalveolar pressure during inspiration
- D. Becomes negative in pneumothorax
- E. Is subatmospheric due to lung elasticity.

20) Intrapleural pressure is:

- A. The pressure inside the lungs.
- B. Generally greater than atmospheric pressure.
- C. Generally slightly greater than alveolar pressure.
- D. Generally less than atmospheric pressure.

21) Intrapleural pressure helps in:

- A. Lung collapse
- B. Increase venous and lymphatic return
- C. Increase work done by respiratory muscles
- D. Decrease the surface tension of alveolar fluid

22) The pleural pressure of a normal 56-year-old woman is approximately -5 cm H₂O during resting conditions immediately before inspiration (i.e., at the end of expiration). What is the pleural pressure (in cm H₂O) during normal inspiration?

- A. $+1$
- B. $+4$
- C. 0
- D. -3
- E. -7

23) The distending pressure of the lungs is:

- A. Intrapleural pressure
- B. Intraalveolar pressure
- C. Transmural pressure across the lungs (transpulmonary pressure)
- D. Transmural pressure across the chest wall (transthoracic pressure)
- E. Atmospheric pressure.

24) Which of the following is correct?

- A. Alveolar pressure is positive during inspiration.
- B. Alveolar pressure is negative during expiration.
- C. Alveolar pressure is positive between breaths.
- D. Intra-pleural pressure is positive during normal inspiration.
- E. Intra-pleural pressure is negative during normal inspiration.

25) During inhalation

- A. Alveolar pressure decreases and intrapleural pressure increases
- B. Both alveolar pressure and intrapleural pressure increase
- C. Both alveolar pressure and intrapleural pressure decrease
- D. Alveolar pressure increases and intrapleural pressure decreases

26) At the end of inhalation, the pleural pressure is:

- A. Greater than atmospheric pressure
- B. Equal to atmospheric pressure
- C. Less than alveolar pressure and atmospheric pressures
- D. Equal to alveolar pressure
- E. Greater than alveolar pressure

27) A 34-year-old male injured with a wound to the chest that causes a pneumothorax. Which of the following best describes the changes in lung volume and thoracic volume in a man with pneumothorax?

Lung volume

Thoracic volume

- | | |
|--------------|-----------|
| A. Decreased | Decreased |
| B. Decreased | Increased |
| C. Decreased | No change |
| D. Increased | Decreased |
| E. Increased | Increased |

28) During normal inspiration:

- A. Intra-pleural pressure is positive.
- B. The volume in the lungs is less than the functional residual capacity.
- C. The intra-pulmonary pressure is equal to atmospheric pressure.
- D. The intra-pulmonary pressure is higher than atmospheric pressure.
- E. Intra-pleural pressure is more negative than it is during expiration.

29) Normal inspiration is:

- A. A passive process
- B. Occurs due to elasticity of the lungs
- C. During which, the abdominal muscles contract
- D. Done by the main inspiratory muscles
- E. During which, the intrapleural pressure and the intraalveolar pressure increase.

30) Which of the following processes does atmospheric pressure play a role in?

- A. Pulmonary ventilation
- B. Production of pulmonary surfactant
- C. Resistance
- D. Surface tension

31) The pressure difference between the intra-alveolar and intrapleural pressures is called _____.

- A. Atmospheric pressure
- B. Pulmonary pressure
- C. Negative pressure
- D. Transpulmonary pressure

32) Contraction of the external intercostal muscles causes which of the following to occur?

- A. The diaphragm moves downward.
- B. The rib cage is compressed.
- C. The thoracic cavity volume decreases.
- D. The ribs move upward.

33) When the diaphragm and external intercostals muscles contract, which of the following actions does NOT occur?

- A. Air moves into the lung
- B. The intrapleural pressure increases
- C. The diaphragm moves inferiorly
- D. The intrapulmonary pressure decreases

34) Which of the following muscles does not act during deep inspiration:

- A. Abdominal muscles
- B. Diaphragm
- C. External intercostals
- D. Sternomastoid muscle
- E. Scalenus muscle.

35) During quiet expiration, the

- A. Abdominal muscles contract.
- B. Diaphragm moves inferiorly.
- C. External intercostal muscles contract.
- D. The lungs passively recoil.
- E. All of these are correct.

36) Which muscles are used for quiet breathing in a healthy, 45-year-old man reading the newspaper?

- A. Diaphragm and external intercostals
- B. Diaphragm and internal intercostals
- C. Diaphragm only
- D. Internal intercostals and abdominal recti
- E. Scaleni

37) The force of exhalation is primarily due to

- A. Greater atmospheric pressure outside the lungs than inside
- B. Elastic recoil of lungs and thoracic muscles
- C. Forceful blowing to remove air from the lungs
- D. Muscular contraction
- E. Diaphragm contraction

38) Cutting the spinal cord below C5 produces:

- A. Paralysis of diaphragm
- B. Respiratory failure and death
- C. Increase lung surface tension
- D. Increase lung elasticity
- E. No marked effect on normal breathing.

39) The primary factor that determine flow of air to the lungs is:

- A. Atmospheric pressure
- B. Intraalveolar pressure
- C. Pressure gradient between atmospheric pressure and intraalveolar pressure
- D. Airway resistance
- E. Intrapleural pressure.

40) Airway resistance is high in:

- A. Tracheostomy
- B. A single bronchus than a single terminal bronchiole
- C. Bronchodilatation
- D. Small airways collected
- E. Pipe smoking.

41) Contraction of the bronchiolar smooth muscle has which of these effects?

- A. A smaller pressure gradient is required to get the same rate of airflow, compared with normal bronchioles.
- B. It increases airflow through the bronchioles.
- C. It increases resistance to airflow.
- D. It increases alveolar ventilation.

42) The distending pressure of the lungs is:

- A. Intrapleural pressure
- B. Intraalveolar pressure
- C. Transmural pressure across the lungs (transpulmonary pressure)
- D. Transmural pressure across the chest wall (transthoracic pressure)
- E. Atmospheric pressure.

43) Low alveolar PCO₂ effect on airway smooth muscles is:

- A. Direct bronchoconstriction
- B. Direct bronchodilatation
- C. No effect
- D. Decrease airway resistance
- E. More air flow into the airways.

44) Small airways are prevented from collapse by:

- A. Transmural pressure gradient across the lungs
- B. Elastic lateral traction
- C. Alveolar interdependence
- D. A and B
- E. B and C.

45) The airway resistance is reduced by:

- A. A blockade of B₂ -adrenergic receptors.
- B. Increase in airway CO₂.
- C. Stimulation of parasympathetic cholinergic fibers.
- D. Release of histamine.

46) All the following affect the airway diameter, except:

- A. Histamine.
- B. Inspiration.
- C. Sympathetic stimulation.
- D. A rise in alveolar PO₂.
- E. A decrease in alveolar PCO₂

47) COPD are characterized by all of the following EXCEPT:

- A. Increase airway resistance
- B. More pressure is needed to inflate the lungs
- C. Active expiration
- D. Increased activity of expiratory muscles
- E. Decreased work of breathing.

48) Compliance of the lung:

- A. Measures the recoil tendency of the lung.
- B. Is expressed as change in volume per unit change in pressure.
- C. Is expressed as change in pressure per unit change in volume.
- D. Is less than the total thoracic compliance (combined compliance of the lung and chest wall).
- E. Is about 5 L/cmH₂O in normal lung.

49) Compliance of the lung is reduced by all of the following except

- A. Emphysema
- B. Alveolar oedema
- C. Fibrosis
- D. Congestion
- E. Atelectasis

50) Lung compliance

- A. Is normally 100mL/cm water for the lungs and the chest combined
- B. Decreased in presence of surfactant
- C. Rises in conditions of pulmonary oedema
- D. Decreases with aging
- E. Is the change in pressure per unit change in volume

51) All of the following about lung compliance is true, except:

- A. Increased in emphysema.
- B. Decreased in pulmonary congestion.
- C. Decreased in hyaline membrane disease.
- D. Decreased in lung fibrosis.
- E. Decreased in old age

52) A man inspires 800 ml from a spirometer. The intrapleural pressure was -4 cm H₂O before inspiration and -12 cm H₂O the end of inspiration. What is the compliance of the lungs?

- A. 50 ml/cm H₂O
- B. 100 ml/cm H₂O
- C. 125 ml/cm H₂O
- D. 150 ml/cm H₂O
- E. 250 ml/cm H₂O

53) A 22-year-old woman has a pulmonary compliance of 0.2 L/cm H₂O and a pleural pressure of -4 cm H₂O. What is the pleural pressure (in cm H₂O) when the woman inhales 1 L of air?

- A. -6
- B. -7
- C. -8
- D. -9
- E. -10

54) A molecule known as _____ reduces surface tension within the alveoli so they do not collapse during exhalation

- A. Surfactant
- B. Angiotensin
- C. Alveolar membrane lipoprotein
- D. Prostaglandin
- E. Carbon dioxide

55) Regarding surfactant, it is:

- A. Formed of proteins.
- B. It increases lung elastic recoil.
- C. It increases the work of breathing.
- D. Decreased in respiratory distress syndrome of newly born.

56) Surfactant

- A. Increases compliance
- B. Is produced by type I pneumocytes
- C. Is inactivated by type II pneumocytes
- D. Increases the work of breathing
- E. Helps atelectasis of lungs

57) Surfactant

- A. Increases surface tension
- B. Surface tension is directly proportional to surfactant concentration
- C. Is produced by type I alveolar cells
- D. Is increased in prematures
- E. Prevents pulmonary oedema

58) All of these statements about surfactant are true except

- A. Promote stability of alveoli
- B. Reduce surface tension of alveoli
- C. Larger alveoli have lower surface tension than small alveoli according to Laplace law
- D. Assist in avoiding transudation of fluid into capillary
- E. Produced by Type II pneumocytes

59) Surfactant

- A. Is produced by class II pneumocytes
- B. Is increased in premature babies
- C. Helps keep the alveoli moist
- D. Decreases alveolar stability in preterm babies
- E. Maturation is impaired by glucocorticoids

60) If a baby is born prematurely before type II cells produce sufficient pulmonary surfactant, which of the following might you expect?

- A. Difficulty in formation of fluid
- B. Difficulty in inflating the lungs
- C. Difficulty with pulmonary capillary flow
- D. No difficulty as type I cells can provide enough surfactant for normal breathing

61) Normally, which of the following keeps the lungs from collapsing?

- A. Surfactant
- B. Negativity of intrapleural pressure
- C. Elastic recoil
- D. Both 'A' and 'B' are correct.

62) Concerning lung surfactant, all the following are correct, except:

- A. It increases the surface tension of the fluid lining the alveoli.
- B. It increases lung compliance.
- C. It prevents pulmonary oedema.
- D. In the absence of normal surfactant, there will be greater tendency for alveoli to collapse .
- E. It helps to maintain equal pressure in small and large alveoli

63) Which mechanism normally prevents the alveoli from collapsing during expiration?

- A. The thickness of the alveolar membranes
- B. The amount of cartilage within bronchi
- C. Pressure within the thoracic cavity
- D. Elastic tissue forces
- E. Secretion of surfactant

64) IRDS is characterized by all of the following EXCEPT:

- A. Increase lung collapse
- B. Increase work of breathing
- C. Decrease rate of respiration
- D. Decrease lung compliance
- E. Pulmonary oedema.

65) A pre-term infant has a surfactant deficiency. Without surfactant, many of the alveoli collapse at the end of each expiration, which in turn leads to pulmonary failure. Which of the following sets of changes are present in the preterm infant, compared to a normal infant?

<i>Alveolar surface tension</i>	<i>Pulmonary compliance</i>
--	------------------------------------

- | | |
|--------------|-----------|
| A. Decreased | Decreased |
| B. Decreased | Increased |
| C. Decreased | No change |
| D. Increased | Decreased |
| E. Increased | Increased |

66) The following will reduce lung compliance EXCEPT:

- A. Pulmonary congestion
- B. Pulmonary fibrosis
- C. Alveolar oedema
- D. Decreased elasticity
- E. Atelectasis

67) Which of the following statement is NOT TRUE?

- A. Surfactant acts to keep alveoli dry.
- B. Intraalveolar pressure increases during inspiration
- C. Normal expiration is a passive process.
- D. Medium sized bronchi is the chief site of airway resistance
- E. Intrapleural pressures becomes more subatmospheric during inspiration

68) The work of breathing is NOT increased in:

- A. Respiratory distress
- B. Sarcoidosis
- C. COPD
- D. Exercise
- E. Increased surfactant.

69) Work of the lung in breathing

- A. Is increased with exercise
- B. Is increased with higher flow rates
- C. In inspiration need to overcome elastic forces and viscous resistance
- D. Typically, it is 3% of the total body energy
- E. All of the above

70) The functions of the residual volume do not include:

- A. Decrease surface tension of the fluid lining the alveoli
- B. Maintains aeration of alveoli between breaths
- C. Facilitates lung inflation
- D. Helps in diagnosis of COPD
- E. Helps in diagnosis if a fetus is born dead or alive.

71) Which of the following decreases the anatomical dead space:

- A. Bronchodilatation
- B. Breathing through tube
- C. Increase in respiratory rate
- D. Sympathetic stimulation of airway smooth muscles
- E. Endotracheal intubation.

72) Which of the following is not a function of the dead space:

- A. Prevents lung collapse
- B. Helps voice production
- C. Defensive function
- D. Makes a difference in composition between alveolar air and expired air
- E. Causes the difference between pulmonary ventilation and alveolar ventilation.

73) With regards to the normal alveolus

- A. Surfactant is produced by type I pneumocytes
- B. Small alveoli have higher surfactant and lower surface tension
- C. Surfactant is composed of cholesterol molecules
- D. It helps the large alveoli to collapse into smaller ones
- E. It helps in formation of fluids around the alveoli

74) The following are true regarding lung volumes and compliance except

- A. Compliance decreases in restrictive lung disease
- B. FEV1/FVC ratio increases in obstructive lung disease
- C. FRC is the sum of ERV and RV
- D. The change in lung volume per unit change in transpulmonary pressure is the compliance of the lung
- E. Vital capacity is the largest amount of air that can be expired after a maximal inspiratory effort

75) The anatomic dead space

- A. Varies with minute ventilation
- B. Is typically 150 mL
- C. Will increase in COPD
- D. Is alveolar minus the pathological dead space
- E. All of the above

76) With respect to lung volumes

- A. FRC can be measured with a spirometer
- B. Residual volume is the volume inspired by maximal inspiration
- C. The volume of gas left in the lungs after a maximal expiration is the functional residual volume
- D. Vital capacity is the volume exhaled when a maximal inspiration is followed by a maximal expiration
- E. TLC is the volume of the lung available to participate in gas exchange

77) With respect to dead space

- A. Dead space volume is equal to the person's weight in kg
- B. With a constant minute ventilation, alveolar ventilation is decreased as respiratory rate increases
- C. Anatomic dead space is less than physiological dead space in healthy persons
- D. Physiological dead space is increased when all alveoli receive adequate blood supply

78) With regard to pulmonary function

- A. Tidal volume is the volume of each maximal inspiration
- B. Residual volume is the volume remaining at the end of passive expiration
- C. Residual volume can be measured directly
- D. Vital capacity is equivalent to the total inspiratory reserve volume, tidal volume and expiratory reserve volume
- E. Tidal volume is measured by the helium dilution technique

79) Residual volume in a 70kg man most closely approximates

- A. 1.2 L
- B. 2.1 L
- C. 3.2 L
- D. 4 L
- E. 5 L

80) Spirometry can measure all except

- A. IC
- B. ERV
- C. FRC
- D. Vital capacity
- E. TV

81) The volume of air that can be exhaled after normal exhalation is the

- A. Tidal volume
- B. Residual volume
- C. Inspiratory reserve volume
- D. Expiratory reserve volume

82) Two healthy women with identical tidal volumes are subjected to spirometry and blood gas measurements. Subject A doubles her tidal volume and decreases her respiratory rate to $\frac{1}{2}$ of baseline. Subject B decreases her tidal volume to $\frac{1}{2}$ of baseline and doubles her respiratory rate. Which of the following statements about the resulting alveolar ventilation in the two women is true?

- A. Alveolar ventilation is unchanged in both subjects
- B. Alveolar ventilation increases in both subjects
- C. Alveolar ventilation decreases in both subjects
- D. Alveolar ventilation increases in subject A and decreases in subject B
- E. Alveolar ventilation decreases in subject A and increases in subject B

83) Which one of the following definitions is incorrect

- A. The respiratory minute volume equals the amount of air inspired per minute
- B. Residual volume is the air left in the lungs after a maximal expiratory effort
- C. Vital capacity is the maximal amount of air that can be expired after a normal inspiration
- D. Physiological dead space is the amount of air not equilibrating with blood
- E. Compliance is the change in lung volume per unit change in transmural pressure across the lungs

84) A woman has a respiratory rate of 20, a tidal volume of 350 mL, and a dead space of 100 mL. What is her alveolar ventilation?

- A. 4.0 L
- B. 4.5 L
- C. 5.0 L
- D. 5.5 L
- E. 6.0 L

85) Which one of the following would increase in obstructive lung disease?

- A. Vital capacity
- B. Maximum breathing capacity
- C. FEV₁
- D. Functional residual capacity
- E. Breathing frequency

86) The following lung volumes can be measured with spirometer EXCEPT:

- A. Vital capacity
- B. Total lung capacity
- C. Tidal volume
- D. Expiratory reserve volume
- E. Inspiratory capacity

87) The concentration of CO₂ is lowest in:

- A. The anatomic dead space at end inspiration
- B. The anatomic dead space at end expiration
- C. The alveoli at end inspiration
- D. The alveoli at end expiration
- E. The blood in the pulmonary veins

88) The total lung capacity consists of:

- A. Vital capacity & tidal volume
- B. Residual volume & vital capacity
- C. Functional residual capacity & vital capacity
- D. Tidal volume & functional residual capacity
- E. Tidal volume & residual volume

89) With regard to pulmonary volumes and capacities:

- A. In restrictive lung disease: FEV1 decrease more than FVC
- B. In obstructive lung disease: FEV1 and FVC are normal
- C. In normal lung, FEV1 / FVC is about 60%
- D. In obstructive lung disease: FEV1 / FVC is about 90%
- E. In obstructive lung disease: FRC and residual volumes are increased.

90) A spirometer can be used to measure directly

- A. Functional residual capacity
- B. Inspiratory capacity
- C. Residual volume
- D. Total lung capacity
- E. None of the above

91) The vital capacity:

- A. The volume of air that present in lung at the end of forced inspiration.
- B. Is equal in men & women of the same age & height.
- C. Volume of air maximally expired at the end of maximum inspiration.
- D. Is equal to the sum of expiratory & inspiratory reserve volumes.

92) The amount of air that cannot be exhaled (expired) even by forced expiration is called:

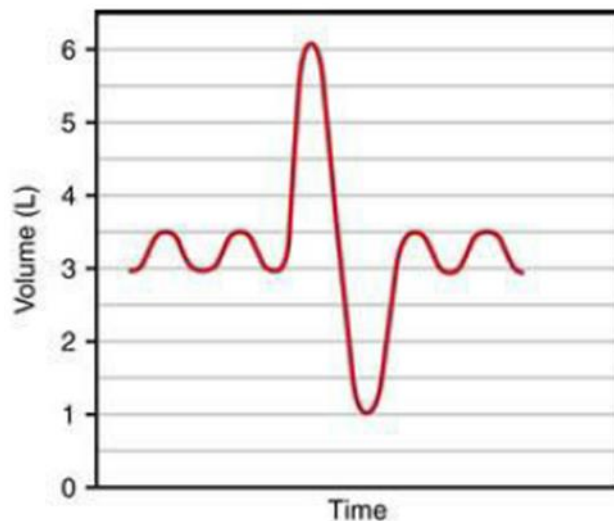
- A. Vital capacity.
- B. Expiratory capacity.
- C. Residual volume.
- D. Forced expiratory volume.

93) A patient has a dead space of 150 ml, functional residual capacity of 3 L, tidal volume of 650 ml, expiratory reserve volume of 1.5 L, total lung capacity of 8 L, and respiratory rate of 15 breaths/min. What is the residual volume?

- A. 500 ml
- B. 1000 ml
- C. 1500 ml
- D. 2500 ml
- E. 6500 ml

94) A 27-year-old man is breathing quietly. He then inhales as much air as possible and exhales as much air as he can, producing the spirogram shown in the figure. What is his expiratory reserve volume (in liters)?

- A. 2.0
- B. 2.5
- C. 3.0
- D. 3.5
- E. 4.0



95) For the same man (in question 94), What is his vital capacity capacity (in liters)?

- A. 3.0
- B. 3.5
- C. 4.0
- D. 4.5
- E. 5.0

96) Even after the most forceful expiration, a certain volume of air remains in the lungs. This volume is called the

- A. Tidal volume
- B. Expiratory reserve volume
- C. Vital capacity
- D. Residual volume
- E. Functional residual capacity

97) The maximum amount of air a person can exhale after taking the deepest breath possible is the

- A. Total lung capacity
- B. Inspiratory reserve volume
- C. Vital capacity
- D. Expiratory reserve volume
- E. Functional residual capacity

98) A 20-years medical student participates in exercise study.

- The respiratory rate = 20 breaths/min.
- Tidal volume = 1000 ml.
- Dead space = 150 ml.

The student's alveolar ventilation is

- A. 7 liters.
- B. 10 liters.
- C. 17 liters.
- D. 3 liters.
- E. 6.2 liters.

99) A patient has a dead space volume of 125 ml, a respiratory rate of 14 breaths / min and a tidal volume of 450 ml. How much is his alveolar ventilation?

- A. 8050 ml/min.
- B. 6525 ml/min.
- C. 5420 ml/min.
- D. 4550 ml/min.
- E. 504 ml/min

100) Which of the following prevents the alveoli from collapsing?

- A. Residual volume
- B. Tidal volume
- C. Expiratory reserve volume
- D. Inspiratory reserve volume

101) Given these lung volumes:

- (1) Tidal volume = 500 mL
- (2) Residual volume = 1000 mL
- (3) Inspiratory reserve volume = 2500 mL
- (4) Expiratory reserve volume = 1000 mL
- (5) Dead space = 1000 mL

The vital capacity is

- A. 3000 mL.
- B. 3500 mL.
- C. 4000 mL.
- D. 5000 mL.
- E. 6000 mL.

102) Alveolar ventilation is the

- A. Tidal volume times the respiratory rate.
- B. Minute ventilation plus the dead space.
- C. Amount of air available for gas exchange in the lungs.
- D. Vital capacity divided by the respiratory rate.
- E. Inspiratory reserve volume times minute ventilation.

103) A patient has a dead space of 150 ml, functional residual capacity of 3 L, tidal volume of 650 ml, expiratory reserve volume of 1.5 L, a total lung capacity of 8 L, respiratory rate of 15 breaths/min. What is the alveolar ventilation?

- A. 5 L/min
- B. 7.5 L/min
- C. 6.0 L/min
- D. 9.0 L/min
- E. 5.5 L/min

Answers

1	C
2	B
3	A
4	C
5	A
6	C
7	B
8	D
9	C
10	A
11	E
12	E
13	C
14	C
15	B
16	B
17	B
18	E
19	E
20	D
21	B
22	E
23	C
24	E
25	C
26	C

27	B
28	E
29	D
30	A
31	D
32	D
33	B
34	A
35	D
36	A
37	B
38	E
39	C
40	E
41	C
42	C
43	A
44	D
45	B
46	D
47	E
48	B
49	A
50	A
51	E
52	B

53	D
54	A
55	D
56	A
57	E
58	C
59	A
60	B
61	D
62	A
63	E
64	C
65	D
66	D
67	B
68	E
69	E
70	A
71	E
72	A
7	B
74	B
75	B
76	D
77	B
78	D

79	A
80	C
81	D
82	D
83	C
84	C
85	D
86	B
87	A
88	B
89	E
90	B
91	C
92	C
93	C
94	A
95	E
96	D
97	C
98	C
99	D
100	A
101	C
102	C
103	B

