Respiratory System

1. Which of the following statements could be applied to “external respiration”?
A. Exchange of gases between alveolar air and the blood in pulmonary capillaries.
B. Exchange of dissolved gases between blood in tissue capillaries and the body tissues.
C. The production of CO2 from organic molecules in the cells by using O2.
D. The inhalation of atmospheric air into the lungs followed by exhalation.

2. Which anatomical structures does the “conducting zone” of the lower respiratory tract contain?
A. Eustachian tube, larynx and trachea.
B. Primary, secondary and tertiary bronchi and bronchioles.
C. Nares, conchae, olfactory mucosa and sinuses.
D. Nasopharynx and larynx.

3-What term is applied to the volume of air that moves into the lungs while breathing at rest? هاض المفروض محاضرة ثانية بس التيست حاطه أولى 🥰
A. anatomical dead space
B. inspiratory reserve capacity
C. tidal volume
D. residual volume

4-Severing the nerves that innervate the breathing muscles may lead rapidly to death. Will a spinal cord break between the level of cervical vertebrae 6 and 7 leave the victim able to breathe? Choose the answer with the correct reason.
A. No. The breathing muscles are innervated by spinal nerves that leave the spinal cord at the level of each thoracic vertebra.
B. Yes. The diaphragm will work as it is innervated by nerves arising from C3 to C5.
C. No. The breathing muscles are innervated by autonomic impulses from the respiratory centre which is located in the brain stem.
D. Yes. The muscles of breathing are innervated by the sympathetic nervous system which is unaffected by damage to the somatic nervous system.

1)Answer is: A External respiration refers to the movement of oxygen from the alveoli into the capillary blood and carbon dioxide from the capillary blood into the alveoli. Choice B is “internal respiration” and choice C is “cellular
2)Answer is B: The conducting zone is distal to the trachea and before the alveoli.
3)Answer is C: Tidal volume moves into the lungs (and out) with each completed inhalation/exhalation at rest.
4)Answer is B: The diaphragm, but not the intercostal muscle will still receive innervation as the diaphragmatic nerves leave the spinal cord superior to the break at C6–C7.

5)What term is applied to the exchange of dissolved gases between capillary blood and body tissues?
A. Internal respiration B. External respiration C. Ventilation
D. Cellular respiration

6)A healthy, 25-year-old medical student participates in a 10-km charity run for the American Heart Association. Which of the following muscles does the student use (contract) during expiration?
A) Diaphragm and external intercostals
B) Diaphragm and internal intercostals
C) Diaphragm only
D) Internal intercostals and abdominal recti
E) Scaleni
F) Sternocleidomastoid muscles

7) The pleural pressure of a normal 56-year-old woman is approximately –5 cm H2O during resting
conditions immediately before inspiration (i.e., at functional residual capacity). What is the pleural pressure (in cm H2O) during inspiration?
A) +1
B) +4
C) 0
D) –3
E) –7

5)
Answer is A: Internal respiration refers to the movement of oxygen from the capillary blood into the tissues and carbon dioxide from the tissues into capil- lary blood. Choice B occurs between the alveoli and pulmonary capillaries and choice C occurs within the mitochondria.

6-D) Contraction of the internal intercostals and abdominal recti pull the rib cage downward during expiration. The abdominal recti and other abdominal muscles compress the abdominal contents upward toward the diaphragm, which also helps to eliminate air from the lungs. The diaphragm relaxes during expiration. The external intercostals, sternocleidomastoid muscles, and scaleni increase the diameter of the chest cavity during exercise and thus assist with inspiration, but only the diaphragm is necessary for inspiration during quiet breathing.
TMP12 465–466
7-.E) The pleural pressure (sometimes called the intrapleural pressure) is the pressure of the fluid in the narrow space between the visceral pleura of the lungs and parietal pleura of the chest wall. The pleural pressure is normally about –5 cm H2O immediately before inspiration (i.e., at functional residual
capacity, FRC) when all of the respiratory muscles are relaxed. During inspiration, the volume of the chest cavity increases and the pleural pressure becomes more negative. The pleural pressure averages about –7.5 cm H2O immediately before expiration when the lungs are fully expanded. The pleural
pressure then returns to its resting value of –5 cm H2O as the diaphragm relaxes and lung volume returns
to FRC. Therefore, the intrapleural pressure is always subatmospheric under normal conditions varying between –5 and –7.5 cm H2O during quiet breathing.