

LSEP_1_T4_L15-19_Revision exercise

1. Which of the following indicates the correct order of the tracheobronchial tree?
 - A. Trachea → bronchiole → primary bronchus → segmental bronchus → lobar bronchus
 - B. Trachea → lobar bronchus → primary bronchus → segmental bronchus → bronchiole
 - C. Trachea → primary bronchus → lobar bronchus → segmental bronchus → bronchiole
 - D. Trachea → segmental bronchus → primary bronchus → bronchiole → lobar bronchus
 - E. Trachea → segmental bronchus → primary bronchus → lobar bronchus → bronchiole
2. How many pair(s) of paranasal sinuses /are there?
 - A. 1
 - B. 2
 - C. 3
 - D. 4
 - E. 5
3. Which structure of the tracheobronchial tree is supported by cartilage pieces?
 - A. The trachea
 - B. The main bronchi
 - C. The segmental bronchi
 - D. The bronchioles
 - E. The terminal bronchioles
4. A foreign object that enter the trachea mostly commonly lodges in the:
 - A. trachea.
 - B. left main bronchus.
 - C. left segmental bronchi.
 - D. right main bronchus.
 - E. right upper lobar bronchus.
5. Which of the following structures connect(s) the nasal cavity and the pharynx?
 - A. The conchae
 - B. The choanae
 - C. The epiglottis
 - D. The glottis
 - E. The uvula
6. Which part of the pharynx is shared by both the respiratory and digestive systems?
 - A. The oropharynx only
 - B. The nasopharynx and oropharynx
 - C. The oropharynx and laryngopharynx
 - D. The nasopharynx and laryngopharynx
 - E. The nasopharynx, oropharynx and laryngopharynx
7. Visceral pleura lines the
 - A. internal surface of the chest wall.
 - B. diaphragm.
 - C. external surface of the lungs.
 - D. internal surface of the lungs.
 - E. both internal and external surfaces of the lungs.
8. The sheet of muscle that divides the thoracic cavity and the abdominal cavity is called the
 - A. diaphragm.
 - B. internal oblique.
 - C. rectus abdominis.
 - D. serratus anterior.
 - E. transverse abdominis.

9. The central compartment of the thoracic cavity is called
- A. hilum.
 - B. pleura.
 - C. mediastinum.
 - D. thoracic cage.
 - E. pleural cavity.
10. How many layers of intercostal muscles are there?
- A. 1
 - B. 2
 - C. 3
 - D. 4
 - E. 5
11. Which of the following statements is correct about lung lobes?
- A. Each lung lobe is divided into 10 bronchopulmonary segments.
 - B. Each lung lobe is supplied by a primary bronchus.
 - C. Each lung lobe is supplied by a segmental bronchus.
 - D. There are 3 lung lobes on the right and 2 on the left.
 - E. There are 10 lung lobes on the right and 8 on the left.
12. The respiratory zone of the tracheobronchial tree includes all except:
- A. alveolar duct.
 - B. alveolar sac.
 - C. alveoli.
 - D. respiratory bronchioles.
 - E. terminal bronchioles.
13. The diaphragm is innervated by the:
- A. intercostal nerve.
 - B. phrenic nerve.
 - C. sympathetic trunk.
 - D. thoracic splanchnic nerves.
 - E. vagus nerve.
14. What is the first step of respiration?
- A. Cellular respiration
 - B. External respiration
 - C. Gas transport
 - D. Internal respiration
 - E. Ventilation
15. Which of the following changes occurs during quiet inspiration?
- A. The external intercostal muscles relax
 - B. The diaphragm lowers
 - C. The rib cage depresses
 - D. The internal intercostal muscles contract
 - E. The sternum is pulled inward
16. What is the driving force for a normal quiet exhalation, and is the process active or passive?
- A. Contraction of diaphragm, active
 - B. Contraction of external intercostal muscles, active
 - C. Contraction of internal intercostal muscles, active
 - D. Elastic recoil force, passive
 - E. Relaxation of internal intercostal muscles, passive

17. Which of the following is/are assessor muscle(s) of inspiration?
- A. Abdominal muscles
 - B. Diaphragm
 - C. External intercostal muscles
 - D. Internal intercostal muscles
 - E. Pectoralis
18. Which of the following muscles contract during a forceful expiration?
- A. The external intercostal muscle and rectus abdominis
 - B. The external intercostal muscle and sternocleidomastoid muscle
 - C. The internal intercostal muscle and pectoralis minor
 - D. The internal intercostal muscle and rectus abdominis
 - E. The internal intercostal muscle and sternocleidomastoid muscle
19. At the end of normal expiration before the next inspiration, the alveolar pressure is
- A. lower than atmospheric pressure.
 - B. lower than intrapleural pressure.
 - C. higher than atmospheric pressure.
 - D. higher than intrapleural pressure.
 - E. the same as intrapleural pressure.
20. When we exhale,
- A. both intrapulmonary pressure & intrapleural pressure decrease.
 - B. both intrapulmonary pressure & intrapleural pressure increase.
 - C. both intrapulmonary pressure & intrapleural pressure remain the main
 - D. intrapulmonary pressure decreases while intrapleural pressure increases.
 - E. intrapulmonary pressure increases while intrapleural pressure decreases.
21. The difference between the amount of air you normally inhale with each breath and the amount you can inhale with maximum effort is the
- A. inspiratory capacity.
 - B. inspiratory reserve volume.
 - C. maximum inspiratory volume.
 - D. functional residual capacity.
 - E. vital capacity.
22. The volume of air that remains in the lungs after a normal quiet expiration is called
- A. expiratory reserve volume.
 - B. functional residual capacity.
 - C. inspiratory reserve volume.
 - D. residual volume.
 - E. tidal volume.
23. Total lung capacity equals
- A. expiratory reserve volume + residual volume.
 - B. expiratory reserve volume + vital capacity
 - C. inspiratory reserve volume + tidal volume.
 - D. inspiratory capacity + functional residual capacity
 - E. inspiratory capacity + residual volume.
24. Exchange of blood gases between the alveolar air and blood is called
- A. cellular respiration.
 - B. external respiration.
 - C. internal respiration.
 - D. gas transport.
 - E. ventilation.

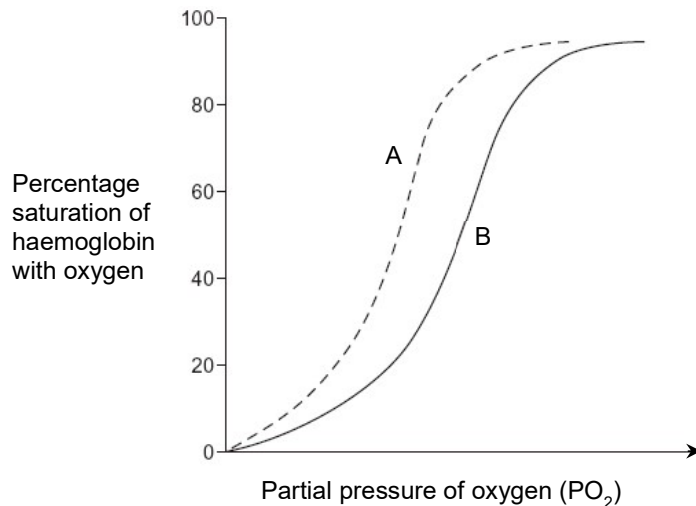
25. Which of the following statements about external respiration is correct?
- A. CO_2 moves into the alveoli because PCO_2 is higher in the blood than in the alveoli
 - B. CO_2 moves into the alveoli because PCO_2 is higher in the alveoli than in the blood.
 - C. CO_2 moves out of the alveoli because PCO_2 is higher in the blood than in the alveoli.
 - D. CO_2 moves out of the alveoli because PCO_2 is higher in the alveoli than in the blood.
 - E. CO_2 moves out of the tissues because PCO_2 is higher in the tissues than in the blood.
26. In the lungs, _____ in the alveoli is _____ that in the blood entering the pulmonary capillaries.
- A. PCO_2 , the same as
 - B. PCO_2 , lower than
 - C. PCO_2 , higher than
 - D. PO_2 , the same as
 - E. PO_2 , lower than
27. During internal and external respiration, gases move by
- A. active transport.
 - B. endocytosis.
 - C. facilitated diffusion.
 - D. osmosis.
 - E. simple diffusion.
28. Internal respiration occurs at the
- A. alveolar membrane.
 - B. bronchioles.
 - C. systemic capillary membranes.
 - D. nasal and oral cavity.
 - E. trachea.
29. Carbon dioxide is mainly carried by blood through
- A. binding to plasma proteins.
 - B. physically dissolving in plasma as gas.
 - C. dissolving in plasma as bicarbonate ions.
 - D. binding to haemoglobin as carboxyhaemoglobin.
 - E. binding to haemoglobin as carbaminohaemoglobin.
30. Bohr effect
- A. occurs in the lungs to facilitate O_2 loading.
 - B. increases the O_2 binding affinity of haemoglobin.
 - C. is caused by an elevation in body temperature.
 - D. is caused by an elevation of plasma H^+ concentration.
 - E. causes the haemoglobin-oxygen dissociation curve to shift to the left.
31. Which of the following conditions would cause a left-shift of the haemoglobin-oxygen dissociation curve?
- A. Increase in 2-3-BPG levels in the red blood cells.
 - B. Increase in pH.
 - C. Increase in PCO_2 .
 - D. Increase in temperature.
 - E. None of the above.
32. Which of the following conditions will decrease the binding affinity between haemoglobin and oxygen?
- A. Decrease in 2-3-BPG levels in the red blood cells.
 - B. Decrease in pH.
 - C. Decrease in PCO_2 .
 - D. Decrease in temperature.
 - E. All of the above.
33. A right shift of the haemoglobin-oxygen dissociation curve indicates that
- A. haemoglobin has a decreased affinity for oxygen.
 - B. haemoglobin has an increased affinity for oxygen.
 - C. haemoglobin has an increased affinity for carbon dioxide.
 - D. oxygen unloading would be less efficient.
 - E. the oxygen saturation is increased at a particular PO_2 .

34. Which of the following hormones has intracellular receptors?
- A. Insulin
 - B. Glucagon
 - C. Cortisol
 - D. Gastrin
 - E. Adrenaline
35. Which of the following pairs of hormones exhibit antagonistic effect?
- A. Cortisol and thyroxine
 - B. Epinephrine and glucagon
 - C. Estrogen and progesterone
 - D. Follicle stimulating hormone and luteinizing hormone
 - E. Insulin and glucagon
36. Which of the following pairs of hormones exhibit permissive effect?
- A. Epinephrine and insulin
 - B. Epinephrine and glucagon
 - C. Estrogen and progesterone
 - D. Follicle stimulating hormone and luteinizing hormone
 - E. Insulin and glucagon
37. Which of the following hormones exhibits cyclical changes in its plasma level?
- A. Cortisol
 - B. Estrogen
 - C. Epinephrine
 - D. Insulin
 - E. Thyroxine
38. Which of the following is a characteristic of amino acid derivative hormones?
- A. Most of them are synthesized by modifying the amino acids tyrosine and tryptophan.
 - B. They are fat-soluble.
 - C. They consist of amino acids joined by peptide bonds.
 - D. They have relatively long half-lives.
 - E. They have relatively short half-lives.
39. Which of the following is a characteristic of peptide hormones?
- A. They are often synthesized as precursor and then processed into the active hormone.
 - B. They are synthesized on demand.
 - C. They are insoluble in plasma.
 - D. They have relatively long half-lives.
 - E. They require carrier proteins for transport in the circulation.
40. Which of the following is a characteristic of steroid hormones?
- A. They are often synthesized as precursor.
 - B. They are soluble in plasma.
 - C. They are synthesized in advance and stored in secretory vesicles.
 - D. They are synthesized in rough endoplasmic reticulum.
 - E. They have relatively long half-lives.
41. Which of the following chemicals mediates non-shivering thermogenesis in brown adipose tissue?
- A. Acetylcholine
 - B. Norepinephrine
 - C. Prostaglandins E₂
 - D. TNF- α
 - E. IL-6

42. Which of the following is correct about brown adipose tissue?
- A. Breakdown of brown adipose tissue produces more ATP than normal adipose tissue.
 - B. Breakdown of brown adipose tissue requires a lot of ATP.
 - C. Brown adipose tissue contains numerous mitochondria.
 - D. Infants have less amount of brown adipose tissue than adults do.
 - E. The older people has the highest amount of brown adipose tissue.
43. Activation of which of the following neurons causes sweating?
- A. Parasympathetic adrenergic neurons
 - B. Parasympathetic cholinergic neurons
 - C. Sympathetic adrenergic neurons
 - D. Sympathetic cholinergic neurons
 - E. Sympathetic dopaminergic neurons
44. Which of the following events happens at the onset of fever?
- A. Cutaneous vasodilation
 - B. Increased blood flow to the skin
 - C. Increased heat production by adipose tissue
 - D. Increased sweating
 - E. Shivering
45. Which of the following chemicals act on the hypothalamus to reset the core temperature set point during fever?
- A. Cytokines
 - B. Lipopolysaccharide
 - C. Prostaglandins E_2
 - D. Endogenous pyrogens
 - E. Exogenous pyrogens

SAQ

1. The thoracic cage protects the heart and the lungs and provide sites for muscle attachment.
 - (a) List the component of the skeleton that forms the thoracic cage?
 - (b) Define true ribs, false ribs and floating ribs and state which ribs are true, false and floating ribs.
2. Breathing requires contraction and relaxation of respiratory muscles.
 - (a) List the TWO primary muscles of inspiration.
 - (b) Explain the mechanism of quiet inspiration.
 - (c) List one accessory muscle of inspiration that assists forced inspiration and state the action of the muscle during force inspiration.
 - (d) List one accessory muscles of expiration that assists forced expiration.
3. The following figure shows two haemoglobin-oxygen (Hb-O_2) dissociation curves at pH 7.2 and pH 7.4.



- (a) State the correct pH for each of the curves.
 - (b) What is the relationship between the position of Hb-O_2 dissociation curve and the affinity of haemoglobin for oxygen?
 - (c) Name the phenomenon that the position of Hb-O_2 dissociation curve changes when pH is lowered.
 - (d) Explain how a change in pH from 7.4 to 7.2 affects the supply of oxygen to the tissue.
 - (e) What are the possible causes for pH to be reduced from 7.4 to 7.2 in a tissue?
4. Hormones regulates various bodily function.
 - (a) What are the THREE modes of actions of hormones?
 - (b) What are the THREE classes of hormones as classified by their structure? Give one example for each class.
 - (c) How does a hormone trigger a reaction in the target cells?
 - (d) Where are hormone receptors found in a cell?
 - (e) What are the possible interactions of hormones in the body? Give an example for each possible interaction.
 - (f) What are the THREE patterns of hormone secretion? Give an example for each pattern of secretion.
 - (g) How can the activity of a hormone be regulated?
 - (h) What are the possible causes of hormonal imbalance?

Please also complete the anatomy exercise on respiratory system.