1. Which structures filter and moisten air as it passes through the human respiratory system?
   A) cilia and mucous membranes
   B) alveoli and cartilage rings
   C) diaphragm and bronchioles
   D) epiglottis and bronchi

2. What will most likely happen when food is in the trachea?
   A) The food will interfere with the passage of air to the alveoli.
   B) The food will undergo emulsification and deamination.
   C) The food will be moved down to the stomach by peristalsis.
   D) The food will be completely digested as a result of enzyme action.

3. Which sequence correctly indicates the branching pattern of the human respiratory system?
   A) trachea → bronchi → bronchioles → alveoli
   B) trachea → bronchioles → bronchi → alveoli
   C) alveoli → trachea → bronchioles → bronchi
   D) alveoli → bronchioles → trachea → bronchi

4. Which statement best describes the structure indicated by letter X in the diagram below?
   A) It is kept open by rings of cartilage.
   B) It is lined with a mucous membrane that filters, moistens, and warms the air.
   C) It is made up of alveoli.
   D) It contains ciliated bronchioles to filter the incoming air.

5. Which statement best describes the function of the respiratory passageways of a human?
   A) They permit digestive end-products to make contact with body cells.
   B) They permit exchange between the external atmosphere and the circulatory system.
   C) They transport gaseous cellular wastes from body cells to the lungs for excretion.
   D) They regulate the amount of ammonia and salt dissolved in body fluids.

6. The human trachea is a passageway that remains open due to the presence of
   A) bones
   B) ligaments
   C) skeletal muscles
   D) cartilaginous rings

7. Which structures in the nasal cavity remove some bacteria and dust from outside air before it enters the lungs?
   A) rings of cartilage
   B) lymph nodes
   C) thin, moist alveoli
   D) ciliated mucous membranes

8. Which statement best describes the human respiratory system?
   A) It is composed of a network of moist passageways that permit air to flow from the external environment to the lungs.
   B) Each cell of the human body is in direct contact with the external environment, and gas exchange occurs by diffusion.
   C) The external body surface is kept moist to allow for gas exchange.
   D) Gases diffuse across membranes on both the external and internal surfaces of the body.

9. The cellular process which uses oxygen and sugar to produce energy is called
   A) photosynthesis
   B) cell division
   C) cellular respiration
   D) DNA replication
10. What is the main function of gas exchange

A) To remove carbon dioxide and supply oxygen to the body
B) To remove oxygen from the body
C) To supply carbon dioxide and remove oxygen from the body
D) To supply water to the body cells

11. Which diagram best illustrates the function of an alveolus?

A)

B)

C)

D)

12. Which structure shown in the diagram below contracts, causing a pressure change in the chest cavity during breathing?

A) A  B) B  C) C  D) D

13. Which part of the human respiratory system is a thin, moist membranous structure where gas exchange occurs?

A) trachea  B) bronchus
C) epiglottis  D) alveolus

14. The diagram below represents part of a capillary in a specific region of the human body.

The region labeled X represents part of
A) a glomerulus  B) an alveolus
C) a villus  D) the liver
15. Which part of the human respiratory system is correctly paired with a description of its structure?

A) alveolus – microscopic sac containing rings of cartilage and ciliated membranes
B) pharynx – cavity lined with flagellated mucous membranes
C) bronchiole – small branching tubule lacking cartilaginous rings
D) trachea – thin, moist membrane surrounded by capillaries

16. In vertebrates, organs adapted for respiratory gas exchange are characterized by the

A) lack of blood vessels
B) presence of villi
C) presence of many capillaries
D) lack of cell membranes

17. In the human respiratory system, bronchioles directly connect the

A) trachea and pharynx
B) bronchi and alveoli
C) nasal cavity and trachea
D) epiglottis and larynx

18. The diagram below represents a demonstration of the breathing process in humans. The balloons represent lungs.

![Diagram of lung balloons](image)

The change in the balloons is brought about by

A) a change in air composition outside the bell jar
B) a change in air pressure inside the bell jar
C) an expansion of the balloons, which pulls the rubber sheet into the bell jar
D) a contraction of the balloons, which forces air into the bell jar

19. In humans, what happens when the breathing rate increases?

A) Additional oxygen will diffuse into the blood as carbon dioxide diffuses out of the blood in the lungs.
B) Additional carbon dioxide will diffuse into the blood as oxygen diffuses out of the blood in the lungs.
C) Oxygen from body cells will diffuse more rapidly into red blood cells.
D) Increased oxygen dissolved in the blood will stimulate the cerebrum to slow the breathing rate.

20. Which human organ is correctly paired with its functional subunits?

A) lung—alveoli
B) kidney—neurons
C) brain—nephrons
D) liver—ureters
21. In humans, most gas exchange occurs between the
   A) excretory tubules and body cells
   B) arteries and body cells
   C) skin and air
   D) alveoli and capillaries

22. Which organism has a respiratory system that
    contains specialized oxygen-conducting structures?
    A) ameba       B) hydra
    C) Paramecium  D) grasshopper

23. The respiratory system of an earthworm utilizes the
    skin as an external gas exchange surface. What
    additional system is used to carry gases to moist
    internal body tissues?
    A) digestive    B) circulatory
    C) nervous      D) endocrine

24. Base your answer to the following question on "the
    diagram below which represents a unicellular
    organism.

   "

    Why is this organism is able to survive without a
    specialized respiratory system?
    A) it possesses a nucleus that controls the synthesis
       of respiratory enzymes
    B) its vacuoles release oxygen from stored
       nutrients
    C) its respiratory surface is in direct contact
       with a watery environment
    D) it possesses chloroplasts that produce oxygen
       when exposed to sunlight

25. Organ systems of the human body interact to maintain a balanced internal environment. As blood
    flows through certain organs of the body, the composition of the blood changes because of
    interactions with those organs. State one change in the composition of the blood as it flows through
    the respiratory system.