Part B. Respiratory System

1. The respiratory system allows oxygen to enter the blood. The oxygen is necessary for cellular production of ______.
   a. ATP
   b. Carbon dioxide
   c. Glucose
   d. Protein

2. Exchange of gases between the air and blood is _____ and the exchange of gases between blood and tissue fluid is _____.
   a. External respiration; internal respiration
   b. External respiration; ventilation
   c. Internal respiration; external respiration
   d. Ventilation; internal respiration

3. Identify the function of the mucous membrane lining respiratory airways.
   a. Clean, warm and moisten air
   b. Exchange gases and warm and moisten air
   c. Exchange gases and clean and warm air
   d. Exchange gases and moisten and warm air

4. Identify structures of the upper respiratory tract.
   a. Alveoli, nasal cavity, pharynx and trachea
   b. Bronchus, nasal cavity, pharynx and larynx
   c. Nasal cavity, pharynx, glottis and larynx
   d. Trachea, nasal cavity pharynx and larynx

5. Identify the structure that keeps food and drink from entering the lower respiratory tract.
   a. Nasal conchae
   b. Tonsils
   c. Tongue
   d. Epiglottis

6. The voice box is also called the _____.
   a. Bronchus
   b. Larynx
   c. Pharynx
   d. Trachea

7. The C-shaped cartilaginous rings around the trachea are open posteriorly to:
   a. Allow for expansion of the esophagus during swallowing
   b. Allow the vocal cords to relax
   c. Prevent food from entering the nasal cavity during swallowing
   d. Prevent food from entering the trachea

8. The right lung has _____ secondary bronchi and the left lung has _____ secondary bronchi.
   a. 2; 2
   b. 2; 3
   c. 3; 2
   d. 3; 3
9. The serous membrane adhering to the surface of the lungs is the _____ and the serous membrane that lines the thoracic cavity is the _____.
   a. Diaphragm; parietal pleura
   b. Parietal pleura; diaphragm
   c. Parietal pleura; visceral pleura
   d. Visceral pleura; parietal pleura

10. During gas exchange within the lungs, oxygen diffuses from the ____ into the blood of the _____.
    a. Alveoli; pulmonary capillaries
    b. Alveoli; bronchiole capillaries
    c. Lobule; pulmonary capillaries
    d. Lobule; bronchiole capillaries

11. List the correct sequence of organs through which air passes into the body.
    a. Nose, larynx, pharynx, trachea, bronchi, lungs
    b. Nose, pharynx, larynx, bronchi, trachea, lungs
    c. Nose, pharynx, larynx, trachea, bronchi, lungs
    d. Nose, trachea, pharynx, larynx, bronchi, lungs

12. What substance is necessary to keep alveoli from collapsing because of the surface tension of the water?
    a. Surfactant
    b. Mucus
    c. Blood
    d. Air

13. The respiratory membrane consists of the:
    a. Alveolar walls
    b. Capillary walls
    c. Alveolar and capillary walls

    a. Abdominal muscles and external intercostal.
    b. Diaphragm and external intercostal muscles
    c. Diaphragm and internal intercostal muscles
    d. Internal and external intercostal muscles

15. During rest, inspiration is considered a(n) _____ phase of ventilation and expiration is considered a(n) _____ phased of ventilation.
    a. Active; active
    b. Active; passive
    c. Passive; passive
    d. Passive; active

16. During inspiration, the diaphragm contracts, causing the volume of the thoracic cavity to _____ and the intrapulmonary pressure to _____.
    a. Decrease; decrease
    b. Decrease; increase
    c. Increase; decrease
    d. Increase; increase
17. During expiration, air flows out of the lungs because atmospheric pressure is:
   a. Greater than intrapulmonary pressure
   b. Less than intrapulmonary pressure
   c. Equal to intrapulmonary pressure
   d. Greater than intrapleural pressure

18. The primary respiratory center is located in the
   a. Brachiocephalic trunk
   b. Hypothalamus
   c. Medulla oblongata
   d. Cerebrum

19. To breathe rhythmically at a normal rate and volume requires input from the
   a. Cerebrum
   b. Cerebellum
   c. Thalamus
   d. Pons

20. The respiratory center is directly sensitive to:
   a. Elevated carbon dioxide
   b. Elevated carbon dioxide and hydrogen ions
   c. Elevated hydrogen ion
   d. Low oxygen levels

21. The driving factor(s) for gas exchange is (are)
   a. Different partial pressures of the blood gases.
   b. The number of white blood cells in the blood.
   c. Different concentrations of the blood gases.
   d. Both A and C

22. External respiration occurs between the alveoli and the pulmonary capillaries because the concentration of oxygen levels is higher in the ______ and the concentration of carbon dioxide is higher in the ______.
   a. Alveoli; pulmonary capillaries
   b. Pulmonary capillaries; alveoli
   c. Systemic capillaries; tissue fluid
   d. Tissue fluid; systemic capillaries

23. Most of the carbon dioxide in the blood is transported as
   a. Carbon dioxide dissolved in the plasma
   b. Bicarbonate ions
   c. Carbaminohemoglobin
   d. Carbonic acid

24. Most of the oxygen in the blood is transported
   a. Dissolved oxygen in the plasma
   b. Attached to the heme group of the hemoglobin in the red blood cells
   c. Attached to the globin part of the hemoglobin in the red blood cells
   d. As bicarbonate ions in the red blood cells