Respiration and Circulation Practice Test - Answer Section

MULTIPLE CHOICE

1. ANS: C  
   MSC: K/U
   PTS: 1  
   LOC: E3.1  
   TOP: 11.1

2. ANS: E  
   MSC: K/U
   PTS: 1  
   LOC: E3.1  
   TOP: 11.1

3. ANS: B  
   MSC: K/U
   PTS: 1  
   LOC: E3.1  
   TOP: 11.1

4. ANS: A  
   MSC: K/U | C
   PTS: 1  
   LOC: E2.1 | E3.1  
   TOP: 11.1

5. ANS: E  
   MSC: K/U
   PTS: 1  
   LOC: E3.1  
   TOP: 11.1

6. ANS: C  
   MSC: K/U
   PTS: 1  
   LOC: E3.1  
   TOP: 11.1

7. ANS: E  
   MSC: K/U
   PTS: 1  
   LOC: E3.1  
   TOP: 11.1

8. ANS: B  
   MSC: K/U
   PTS: 1  
   LOC: E3.1  
   TOP: 11.1

9. ANS: E  
   MSC: K/U
   PTS: 1  
   LOC: E3.1  
   TOP: 11.1

10. ANS: D  
    MSC: K/U
    PTS: 1  
    LOC: E3.1  
    TOP: 11.1

11. ANS: D  
    MSC: K/U
    PTS: 1  
    LOC: E3.1  
    TOP: 11.1

12. ANS: B  
    MSC: K/U
    PTS: 1  
    LOC: E3.1  
    TOP: 11.1

13. ANS: A  
    MSC: K/U
    PTS: 1  
    LOC: E3.1  
    TOP: 11.1

14. ANS: B  
    MSC: K/U
    PTS: 1  
    LOC: E3.1  
    TOP: 11.1

15. ANS: A  
    MSC: K/U
    PTS: 1  
    LOC: E3.1  
    TOP: 11.1

16. ANS: E  
    MSC: K/U
    PTS: 1  
    LOC: E3.1  
    TOP: 11.1

17. ANS: D  
    MSC: K/U | C
    PTS: 1  
    LOC: E2.1  
    TOP: 11.1

18. ANS: E  
    MSC: K/U | C
    PTS: 1  
    LOC: E2.1  
    TOP: 11.1

19. ANS: E  
    MSC: K/U
    PTS: 1  
    LOC: E2.1  
    TOP: 11.1

20. ANS: D  
    MSC: K/U
    PTS: 1  
    LOC: E2.1  
    TOP: 11.2

21. ANS: A  
    MSC: K/U | C
    PTS: 1  
    LOC: E2.1  
    TOP: 11.1

22. ANS: B  
    MSC: K/U | C
    PTS: 1  
    LOC: E2.1  
    TOP: 11.1

23. ANS: D  
    PTS: 1  
    LOC: E2.1  
    TOP: 11.1
24. ANS: B  PTS: 1  LOC: E2.1  TOP: 11.2
25. ANS: E  PTS: 1  LOC: E2.1  TOP: 11.2
26. ANS: C  PTS: 1  LOC: E2.1  TOP: 11.2
27. ANS: D  PTS: 1  LOC: E2.1  TOP: 11.2
28. ANS: A  PTS: 1  LOC: E2.1  TOP: 11.2
29. ANS: D  PTS: 1  LOC: E2.1  TOP: 11.2
30. ANS: B  PTS: 1  LOC: E2.1  TOP: 11.2
31. ANS: A  PTS: 1  LOC: E3.1  TOP: 11.2
32. ANS: D  PTS: 1  LOC: E3.1  TOP: 11.2
33. ANS: E  PTS: 1  LOC: E3.4  TOP: 11.3
34. ANS: E  PTS: 1  LOC: E3.4  TOP: 11.3
35. ANS: A  PTS: 1  LOC: E3.4  TOP: 11.3
36. ANS: D  PTS: 1  LOC: E2.1 | E3.4  TOP: 11.3
37. ANS: C  PTS: 1  LOC: E2.1 | E3.4  TOP: 11.3
38. ANS: E  PTS: 1  LOC: E3.3  TOP: 12.1
39. ANS: B  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
40. ANS: A  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
41. ANS: A  PTS: 1  LOC: E3.3  TOP: 12.1
42. ANS: E  PTS: 1  LOC: E3.3  TOP: 12.1
43. ANS: B  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
44. ANS: A  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
45. ANS: A  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
46. ANS: B  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
47. ANS: A  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
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72. ANS: C  PTS: 1  LOC: E2.1  TOP: 12.2
73. ANS: A  PTS: 1  LOC: E2.1  TOP: 12.3

MATCHING

1. ANS: D  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
2. ANS: H  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
3. ANS: B  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
4. ANS: G  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
5. ANS: J  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
6. ANS: E  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
7. ANS: C  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
8. ANS: F  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
9. ANS: A  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1
10. ANS: I  PTS: 1  LOC: E2.1 | E3.3  TOP: 12.1

SHORT ANSWER

1. ANS:
   Oxygen is needed for cellular respiration, which releases energy to the body.
   PTS: 2  LOC: E3.1  TOP: 11.1  MSC: K/U

2. ANS:
   Blood carries oxygen from the lungs to the other cells in the body that use it for cellular respiration.
   PTS: 2  LOC: E3.1  TOP: 11.1  MSC: K/U

3. ANS:
   • The surface area is increased by multiple gills.
   • Blood flows through the gills in the opposite direction to the flow of oxygen-containing water. Oxygen diffuses along a diffusion gradient, meaning that the oxygen molecules move from a region of high concentration to a region of low concentration. Because blood and water flow in opposite directions, the diffusion gradient of the oxygen is kept high.
   PTS: 3  LOC: E3.1  TOP: 11.1  MSC: K/U
4. ANS:

![A Typical Spirograph](image)

5. ANS:
The pressure in the lungs decreases, and as the lungs expand, air moves in.

PTS: 2  LOC: E3.1  TOP: 11.1  MSC: K/U

6. ANS:
- The body adapts to make the best use of the little oxygen available.
- The chest can increase the rate of breathing so that more air is ventilated.
- The bloodstream can increase the number of red blood cells so more oxygen is captured at the alveoli.

PTS: 3  LOC: E3.4  TOP: 11.1  MSC: A

7. ANS:
- Lung capacity is the amount of air that can be held in the lungs after a deep breath.
- A large lung capacity provides the body with more air and more oxygen. This allows an athlete to do more work per breath.

PTS: 2  LOC: E3.1  TOP: 11.1  MSC: A

8. ANS:
Breathing through the mouth does not warm and moisten the air was well as breathing through the nose.

PTS: 1  LOC: E3.1  TOP: 11.2  MSC: A

9. ANS:
10. **ANS:**
   - The rate of breathing increases with increased physical activity.
   - Activity requires oxygen for cellular respiration. Greater activity requires more oxygen, and this leads to an increased breathing rate.

11. **ANS:**
    Most of the carbon dioxide is dissolved in the blood fluid, but a portion is carried by the hemoglobin of the red blood cell.

12. **ANS:**
    - Oxygen rich blood carries oxygen to the leg.
    - Oxygen will diffuse out of blood into cells that are low in oxygen.
    - Carbon dioxide will diffuse out of cells into blood.
    - Blood flows back to heart (and lungs).
13. **ANS:**
- heart — pumps blood and generates blood flow
- blood vessels — the tubes that blood flows through
- blood — the fluid that carries materials throughout the body

14. **ANS:**

15. **ANS:**
   a. Most of the blood flows through two different circulation systems—the systemic circulatory system and the pulmonary circulatory system.
   b. This separates the system to oxygenate blood, which helps to maximize oxygen capture.

16. **ANS:**
Nutrients from the digestive system diffuse into capillaries so that blood can transport these nutrients to other parts of the body.
17. ANS:

18. ANS:
The “lub-DUB” is the sound of pairs of valves closing. The softer sound is the atrioventricular valves closing. The louder sound is the made as the semilunar valves close.

19. ANS:

\[
\begin{array}{c}
_R_ \text{ AV valves close} \\
_Q_ \text{ ventricles fill} \\
_T_ \text{ ventricles relax} \\
_P_ \text{ atria contract} \\
_S_ \text{ ventricles contract}
\end{array}
\]