

Anatomy & Physiology Answer Sheet

Name: KEY School: _____ Team: _____

Respiratory System

True or False (1 pt)

1. T 2. T 3. F 4. F 5. F 6. F

Short Answers

7. As the concentration of CO₂ in the blood increases, it leads to increased levels of hydrogen ions, decreasing pH. The increase in hydrogen ions in the brain triggers the central chemoreceptors to stimulate the respiratory centers to initiate contraction of the diaphragm and intercostal muscles. As a result, the rate and depth of respiration increase, allowing more carbon dioxide to be expelled.

8. When ventilation is not sufficient for an alveolus, the partial pressure of oxygen in the alveolus decreases. As a result, the pulmonary capillaries serving this alveolus will constrict, redirecting blood flow to other alveoli that are receiving sufficient ventilation.

9. Increased CO₂ (Decreased pH), Increased Temperature, Increased 2,3 BPG

10. H₂O H₂CO₃ Carbonic anhydrase (CA)

11. Carbon dioxide can be transported by three mechanisms: **dissolved in plasma**, as **bicarbonate**, or as **carbaminohemoglobin**. Dissolved in plasma, carbon dioxide molecules simply diffuse into the blood from the tissues. Bicarbonate is created by a chemical reaction that occurs mostly in erythrocytes, joining carbon dioxide and water by carbonic anhydrase, producing carbonic acid, which breaks down into bicarbonate and hydrogen ions. Carbaminohemoglobin is the bound form of hemoglobin and carbon dioxide

12. Kidneys erythropoietin (EPO),

Multiple Choice

13. C 14. A 15. D 16. A 17. B 18. A

19. C 20. B 21. A 22. C 23. A

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Digestive System

True or False

24. F 25. F 26. T 27. F 28. T

Short Answers

29. Lamina Propria of Mucosa

30. Duodenum, Pancreas, Ascending colon, Descending colon, Rectum

31. Once the chyme reaches duodenum, pancreas produce bicarbonate-rich juices help neutralize acidic chyme and provide optimal environment for enzymatic activity.

32. parietal cell ---- Hydrogenchloric acid and intrinsic factor

 pancreas ---- Bicarbonate juice

 gallbladder and liver -----bile

33. enamel

34. soft palate uvula glottis

35. The incisors. Since these teeth are used for tearing off pieces of food during ingestion, the player will need to ingest foods that have already been cut into bite-sized pieces until the broken teeth are replaced.

36. The mucosal barrier protects the stomach from self-digestion. It includes a **thick coating of bicarbonate-rich mucus**; the mucus is physically protective, and bicarbonate neutralizes gastric acid. Epithelial cells meet at **tight junctions, which block gastric juice from penetrating** the underlying tissue layers, and **stem cells quickly replace sloughed off epithelial mucosal cells**.

37. Nutrients from the breakdown of carbohydrates and proteins are absorbed through a capillary bed in the villi of the small intestine. Lipid breakdown products are absorbed into a lacteal in the villi and transported via the lymphatic system to the bloodstream.

38. The pancreas secretes protein-digesting enzymes in their inactive forms because if secreted in their active forms, they would self-digest the pancreas. These enzymes are activated in the duodenum.

Multiple Choice

39. A 40. D 41. B 42. C 43. A 44. A

45. B 46. B 47. C 48. D

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Immune system

True or False

49. __T__ 50. __F__ 51. __F__ 52. __T__ 53. __F__

Multiple Choice

54. B 55. B 56. B 57. A 58. B 59. B

60. D 61. B 62. B 63. D

Short Answers

64. B cells activated during a primary response differentiate either into terminally differentiated plasma cells or into memory B cells. These memory B cells are what respond during a secondary or memory antibody response

65. Unlike the cardiovascular system where the blood is actively circulated by the heart, lymph is forced through the vessels via one way valves by the movement of the body, contraction of the skeletal muscles and breathing.

Name the disease/disorder

66. Cystic Fibrosis

71. Emphysema

67. Sleep Apnea

72. Type I Diabetes Mellitus

68. Pneumonia

73. Multiple Sclerosis

69. Lung Cancer

74. AIDS

70. Asthma

75. Grave's Disease

Identify pattern of breathing

76. Apnea

80. Hyperpnea

77. Eupnea

81. Orthopnea

78. Tachypnea

82. Hyperventilation

79. Dyspnea

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Identify the pictured cells

83. E

84. A, B, C

85. A, D

86. D

87. C

Identify the parts of the digestive system

A. Gallbladder

H. Esophagus

B. Transverse Colon

I. Liver

C. Cecum

J. Appendix

D. Pancreas

K. Fundus

E. Stomach

L. Rugae

F. Spleen

M. Lesser Curvature

G. Duodenum

O. Pyloric Sphincter

Identify the parts of respiratory system

A. Nasal Concha

F. Palatine Tonsil

B. Hard Palate

G. Vocal Cord

C. Epiglottis

H. Cardiac Notch

D. Trachea

I. Superior lobe of Right Lung

E. Uvula

J. Horizontal fissure

****Tie Break: Pseudostratified ciliated columnar epithelium of Trachea, Exocrine and Endocrine cells of Pancreas, Villi of Small Intestine