<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Which of the following is a connective tissue?</td>
<td>A. Skin.  B. Brain.  C. Blood.  D. Muscle.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Similar cells which are joined together form</td>
<td>A. a tissue.  B. an organ.  C. cytoplasm.  D. an organ system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Tissues that hold structures together and provide support and protection are</td>
<td>A. nerve tissues.  B. epithelial tissues.  C. epidermis tissues.  D. connective tissues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>From left to right, the sequence that represents increasing complexity is</td>
<td>A. 1, 3, 2, 4  B. 2, 1, 3, 4  C. 2, 4, 1, 3  D. 2, 4, 3, 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Blood is a type of</td>
<td>A. nervous tissue.  B. epithelial tissue.  C. muscular tissue.  D. connective tissue.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Digestion is defined as the process whereby</td>
<td>A. glucose is converted to glycogen.  B. carbon dioxide is reduced to carbohydrate.  C. proteins are absorbed into the bloodstream.  D. food is chemically and physically broken down.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Which of the following describes peristalsis?</td>
<td>A. the physical breakdown of fats  B. production of vitamins by <em>E. coli</em>  C. release of enzymes by the pancreas  D. muscle contractions of the digestive tract</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>A patient complains of a burning sensation in the chest. This was found to be caused by gastric juice in the esophagus. The structure most likely not functioning properly is the</td>
<td>A. pharynx.  B. epiglottis.  C. pyloric sphincter.  D. cardiac sphincter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Chewing food aids digestion by</td>
<td>A. stimulating the release of bile.  B. increasing the surface area of the food.  C. breaking up large protein molecules into peptides.  D. completing the chemical breakdown of carbohydrates.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>The purpose of physical digestion is to</td>
<td>A. hydrolyze large molecules.  B. increase the amount of feces.  C. increase the surface area of food.  D. slow the action of digestive enzymes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>The purpose of physical digestion is to</td>
<td>A. hydrolyze large molecules.  B. increase the amount of feces.  C. increase the surface area of food.  D. slow the action of digestive enzymes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Which of the following structures prevents food from entering the trachea?</td>
<td>A. Larynx.  B. Pharynx.  C. Epiglottis.  D. Cardiac sphincter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>The part of the digestive tract where starch first undergoes chemical digestion is the</td>
<td>A. mouth.  B. stomach.  C. large intestine.  D. small intestine.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
16. Eating which of the following would slow the rate of chemical digestion in the mouth?

17. Which of the following is required to convert pepsinogen into pepsin?

18. A role of hydrochloric acid in the stomach is to

19. Sodium bicarbonate (NaHCO₃) in pancreatic juice
A. emulsifies fats.  B. activates pepsin.  C. neutralizes acid chyme.  D. stimulates the release of insulin.

20. Which of the following would inhibit trypsin’s ability to form an enzyme-substrate complex?

21. Which of the following is not a function of pancreatic juice?

22. Which of the following is a function of pancreatic juice?

23. If sodium bicarbonate (NaHCO₃) is not released as part of the pancreatic juice, the pH of the
A. stomach will remain basic.  B. pancreas will become acidic.  C. large intestine will become basic.  D. small intestine will remain acidic.

24. Pancreatic juices are
A. basic.  B. acidic.  C. the source of secretin.  D. unnecessary for the digestion of fat.

25. The chemical digestion of fats is a result of the release of secretions from the

26. Trypsin functions best in which of the following conditions?
A. basic  B. acidic  C. neutral  D. low pH

27. Which organ has a large surface area and has special adaptations for the absorption of fats?
A. mouth  B. stomach  C. esophagus  D. small intestine

28. Peristalsis in the esophagus
A. moves food to the stomach.  B. opens the pyloric sphincter.  C. activates the salivary glands.  D. causes the secretion of pepsinogen.

29. The function of the pyloric sphincter is to prevent the backflow of material from the
A. esophagus to the mouth.  B. duodenum to the stomach.  C. stomach to the esophagus.  D. colon to the small intestine.

30. A function of the small intestine is to

31. Which of the following enzymes is correctly matched with its site of production?

32. The enzyme amylase is produced by which organs?

33. Which pair of enzymes have similar substrates?
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>35. An example of absorption is the A. movement of food by peristalsis. B. active transport of glucose into a villus. C. hydrolysis of a peptide into amino acids. D. release of secretin in the presence of HCl.</td>
<td>A. movement of food by peristalsis.</td>
</tr>
<tr>
<td>37. The presence of large numbers of mitochondria in the cells lining the small intestine allows it to A. release HCl. B. produce bile. C. absorb glucose. D. synthesize vitamins.</td>
<td>C. absorb glucose.</td>
</tr>
<tr>
<td>40. High levels of toxins in the blood may indicate a problem with the function of the A. liver. B. stomach. C. pancreas. D. small intestine.</td>
<td>A. liver.</td>
</tr>
<tr>
<td>41. The liver plays vital roles in all of the following systems except the A. nervous system. B. digestive system. C. excretory system. D. circulatory system.</td>
<td>A. nervous system.</td>
</tr>
<tr>
<td>42. Vitamins and amino acids are produced in the large intestine by A. feces. B. bacteria. C. the cells of the villi. D. the reabsorption of water.</td>
<td>B. bacteria.</td>
</tr>
<tr>
<td>43. A function of the liver is to A. produce glucagon. B. break down blood cells. C. regulate sodium and potassium levels. D. secrete enzymes into the small intestine.</td>
<td>C. regulate sodium and potassium levels.</td>
</tr>
<tr>
<td>44. Products of the liver include A. pepsin, gastrin and bile. B. bile, proteases and urea. C. bile, urea and blood proteins. D. proteases, amylases and lipase.</td>
<td>B. bile, proteases and urea.</td>
</tr>
<tr>
<td>45. If a person’s liver fails, which process listed below would stop? A. Digestion of proteins. B. Destruction of red blood cells. C. Storage of starch between meals. D. Reabsorption of water from the digestive tract.</td>
<td>C. Storage of starch between meals.</td>
</tr>
<tr>
<td>46. The emulsification of fats is a result of the release of secretions from the A. pancreas. B. gall bladder. C. small intestine. D. salivary glands.</td>
<td>B. gall bladder.</td>
</tr>
<tr>
<td>47. The emulsification of fat is carried out by A. bile. B. lipase. C. pepsin. D. bicarbonate ions.</td>
<td>B. lipase.</td>
</tr>
<tr>
<td>49. People who have their gall bladder removed have the most difficulty digesting A. butter. B. apples. C. vitamins. D. egg whites.</td>
<td>A. butter.</td>
</tr>
</tbody>
</table>
50. The gall bladder functions to

51. Emulsification of fat is the function of

52. Removal of the gall bladder would affect a person’s ability to digest

53. The release of cholecystokinin (CCK) would most likely be triggered after a meal of

54. One function of the lymphatic system is to
A. deliver oxygen to body tissues.  B. store fluids during dehydration.  C. absorb fats from the digestive system.  D. carry platelets to sites of vessel injury.

55. Lacteals primarily absorb

56. Bile is released as a result of
A. gastrin entering the blood.  B. sympathetic nerves being stimulated.  C. the duodenum secreting CCK (cholecystokinin).  D. the presence of carbohydrates in the digestive tract.

57. Which of the following supports the idea that the secretion of enzymes from the pancreas is controlled by hormones?
A. The sight and smell of food causes the pancreas to secrete enzymes.  B. If the nerves leading to the pancreas are cut, no enzymes are secreted.  C. If there is no food in the stomach, the pancreas will not secrete enzymes.  D. If the nerves leading to the pancreas are cut and weak acid is placed in the intestine, the pancreas secretes enzymes.

58. The secretion of cholecystokinin (CCK) will be stimulated by the presence of
A. polypeptides and glucose.  B. partially digested protein and fats.  C. partially digested starch and water.  D. completely digested carbohydrates and water.

59. What would occur if sodium bicarbonate ions were removed from pancreatic juice?
A. Decreased amounts of bile would be released.  B. Increased H₂O absorption would occur in the colon.  C. The cells lining the small intestine would be damaged.  D. Digestion of nutrients in the small intestine would increase.

60. The absorption of water from the digestive tract occurs mainly in the

61. Populations of E. coli are found in the

62. The main source of energy for the body’s metabolic processes comes from the breakdown of

63. Which of the following are absorbed into the lymphatic system from the small intestine?

64. Absorption of most nutrients from the digestive tract occurs in the
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
</table>
| 65. An example of absorption is the | A. movement of food by peristalsis.  
| | B. active transport of glucose into a villus.  
| | C. hydrolysis of a peptide into amino acids.  
| | D. release of secretin in the presence of HCl.  
| 66. E. coli are beneficial to humans because they | A. convert pepsinogen to pepsin.  
| | B. produce vitamins and amino acids.  
| | C. absorb water from the large intestine.  
| | D. synthesize urea from the breakdown of amino acids.  
| 67. In humans, the bacteria E. coli are **normally** found within the | A. colon.  
| | B. mouth.  
| | C. pancreas.  
| | D. small intestine.  
| 68. Which of the following correctly matches a digestive enzyme with its source? | A. Pepsin / pancreas.  
| | B. Bile / gall bladder.  
| | C. Trypsin / stomach.  
| | D. Amylase / pancreas.  
| 69. Secretions from the salivary glands catalyze which of the following reactions? | A. protein $\rightarrow$ H$_2$O $\rightarrow$ peptides  
| | B. peptides $\rightarrow$H$_2$O $\rightarrow$ amino acids  
| | C. carbohydrates $\rightarrow$H$_2$O $\rightarrow$ maltose  
| | D. fats $\rightarrow$H$_2$O $\rightarrow$ fatty acids and glycerol  
| 70. When salivary amylase enters the stomach, it becomes | A. basic.  
| | B. buffered.  
| | C. activated.  
| | D. denatured.  
| 71. Increasing the secretion of insulin would have which of the following effects? | A. decreased blood sugar  
| | B. decreased metabolic rate  
| | C. increased protein synthesis  
| | D. increased digestion of carbohydrate  
| 72. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 73. Which of the following correctly matches a digestive enzyme with its source? | A. Pepsin / pancreas.  
| | B. Bile / gall bladder.  
| | C. Trypsin / stomach.  
| | D. Amylase / pancreas.  
| 74. Increasing the secretion of insulin would have which of the following effects? | A. decreased blood sugar  
| | B. decreased metabolic rate  
| | C. increased protein synthesis  
| | D. increased digestion of carbohydrate  
| 75. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 76. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 77. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 78. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 79. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 80. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 81. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 82. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 83. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 84. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 85. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 86. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 87. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 88. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 89. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 90. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 91. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 92. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 93. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 94. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 95. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 96. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 97. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 98. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
| 99. Which of the following would prevent maltase from forming an enzyme-substrate complex? | A. pH of 8.5  
| | B. a competitive inhibitor  
| | C. increased production of bile  
| | D. an increase in substrate concentration  
| 100. Two glands that are responsible for secreting protein-digesting enzymes are | A. salivary and gastric.  
| | B. gastric and pancreas.  
| | C. thyroid and pancreas.  
| | D. intestinal and thyroid.  
|
77. Blood glucose levels are lowered by insulin because it stimulates  
A. gluconeogenesis.  
B. the uptake of glucose by cells.  
C. the conversion of glucose to fatty acids.  
D. the conversion of glucose to amino acids.

78. Amylase is synthesized at the  

79. The following events take place after eating a protein-rich meal.  
1. The pancreas releases sodium bicarbonate(NaHCO₃).  
2. Pepsinogen is converted into pepsin.  
3. Gastrin is released into the bloodstream.  
4. Acid chyme stimulates the release of secretin.  Place these events in the correct order for digestion.  
A. 3, 2, 4, 1.  B. 3, 4, 2, 1.  C. 4, 2, 3, 1.  D. 2, 4, 1, 3.

80. Difficulty in absorbing glucose could indicate malfunctioning of the  

81. The main source of energy in food is  

82. Bread that has been partially digested by saliva tends to have a sweet taste. Which enzyme and substrate are involved?  

83. The digestion of starch is catalyzed by a polymer made up of  

84. In a demonstration, 10 grams of raw meat were suspended in an enzyme solution. After several hours the meat was weighed and was found to have a mass of 3 grams. The solution most likely contained  

85. The role of bile during digestion is to  
A. stimulate the release of glycogen.  
B. hydrolyze neutral fats into fatty acids.  
C. catalyze the breakdown of peptides into amino acids.  
D. break fat into droplets thereby increasing surface area.

86. Abnormal liver function in humans affects the digestion of  

87. Glucose levels in the blood are lowered by the hormone  

88. Which of the following enzymes is correctly matched with its substrate?  

89. A piece of stomach wall is grafted into the skin of a mammal. The presence of food in the stomach causes this patch of stomach wall on the skin to produce gastric juices. This is evidence that the secretion of gastric juice is most likely brought about by  
A. peristalsis.  
B. nervous stimulation.  
C. the secretion of a hormone.  
D. mechanical stimulation of the stomach wall.

90. Which of the following is a function of insulin?  
A. Initiating the ‘fight or flight’ response.  
B. Decreasing glucose concentration in the blood.  
C. Increasing the calcium ions concentration in the blood.  
D. Decreasing the sodium ions concentration in the blood.
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>46</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>47</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>48</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
<td>49</td>
</tr>
<tr>
<td>5</td>
<td>C</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>D</td>
<td>51</td>
</tr>
<tr>
<td>7</td>
<td>D</td>
<td>52</td>
</tr>
<tr>
<td>8</td>
<td>D</td>
<td>53</td>
</tr>
<tr>
<td>9</td>
<td>D</td>
<td>54</td>
</tr>
<tr>
<td>10</td>
<td>B</td>
<td>55</td>
</tr>
<tr>
<td>11</td>
<td>C</td>
<td>56</td>
</tr>
<tr>
<td>12</td>
<td>C</td>
<td>57</td>
</tr>
<tr>
<td>13</td>
<td>C</td>
<td>58</td>
</tr>
<tr>
<td>14</td>
<td>A</td>
<td>59</td>
</tr>
<tr>
<td>15</td>
<td>B</td>
<td>60</td>
</tr>
<tr>
<td>16</td>
<td>B</td>
<td>61</td>
</tr>
<tr>
<td>17</td>
<td>B</td>
<td>62</td>
</tr>
<tr>
<td>18</td>
<td>A</td>
<td>63</td>
</tr>
<tr>
<td>19</td>
<td>C</td>
<td>64</td>
</tr>
<tr>
<td>20</td>
<td>A</td>
<td>65</td>
</tr>
<tr>
<td>21</td>
<td>B</td>
<td>66</td>
</tr>
<tr>
<td>22</td>
<td>C</td>
<td>67</td>
</tr>
<tr>
<td>23</td>
<td>D</td>
<td>68</td>
</tr>
<tr>
<td>24</td>
<td>A</td>
<td>69</td>
</tr>
<tr>
<td>25</td>
<td>A</td>
<td>70</td>
</tr>
<tr>
<td>26</td>
<td>A</td>
<td>71</td>
</tr>
<tr>
<td>27</td>
<td>D</td>
<td>72</td>
</tr>
<tr>
<td>28</td>
<td>A</td>
<td>73</td>
</tr>
<tr>
<td>29</td>
<td>B</td>
<td>74</td>
</tr>
<tr>
<td>30</td>
<td>D</td>
<td>75</td>
</tr>
<tr>
<td>31</td>
<td>C</td>
<td>76</td>
</tr>
<tr>
<td>32</td>
<td>D</td>
<td>77</td>
</tr>
<tr>
<td>33</td>
<td>A</td>
<td>78</td>
</tr>
<tr>
<td>34</td>
<td>C</td>
<td>79</td>
</tr>
<tr>
<td>35</td>
<td>B</td>
<td>80</td>
</tr>
<tr>
<td>36</td>
<td>C</td>
<td>81</td>
</tr>
<tr>
<td>37</td>
<td>C</td>
<td>82</td>
</tr>
<tr>
<td>38</td>
<td>D</td>
<td>83</td>
</tr>
<tr>
<td>39</td>
<td>A</td>
<td>84</td>
</tr>
<tr>
<td>40</td>
<td>A</td>
<td>85</td>
</tr>
<tr>
<td>41</td>
<td>A</td>
<td>86</td>
</tr>
<tr>
<td>42</td>
<td>B</td>
<td>87</td>
</tr>
<tr>
<td>43</td>
<td>B</td>
<td>88</td>
</tr>
<tr>
<td>44</td>
<td>C</td>
<td>89</td>
</tr>
<tr>
<td>45</td>
<td>B</td>
<td>90</td>
</tr>
</tbody>
</table>