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| **Study Guide Molecular Biology [440167]** | |
| Student |  |

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| **1.** | Which ***best*** describes the effects of exercise on the respiratory and digestive systems? |
|  | |  |  | | --- | --- | | **A.** | Exercise causes deeper breathing that makes the heart and lung muscles stronger, while helping to push food through the body. | |
|  | |  |  | | --- | --- | | **B.** | Exercise causes deeper breathing that makes the heart and lung muscles stronger, while there is no affect on the digestive system. | |
|  | |  |  | | --- | --- | | **C.** | Exercise causes blood to be pushed through the body at a rapid pace, while preventing the pushing of food through the digestive system. | |
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| **2.** | Which is required for growth to occur in an animal? |
|  | |  |  | | --- | --- | | **A.** | Waste products must be excreted. | |
|  | |  |  | | --- | --- | | **B.** | Energy must be stored in fat deposits. | |
|  | |  |  | | --- | --- | | **C.** | Nutrients must be converted into energy. | |
|  | |  |  | | --- | --- | | **D.** | Water must be constantly taken into the body. | |
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| **3.** | Why is sunlight important for the survival of living organisms? |
|  | |  |  | | --- | --- | | **A.** | Sunlight creates fertile soil, which allows plants to release energy to other organisms. | |
|  | |  |  | | --- | --- | | **B.** | Sunlight allows decomposers to break down dead organisms, which plants and animals use as energy for photosynthesis. | |
|  | |  |  | | --- | --- | | **C.** | Sunlight is needed for plants to produce food, and the energy is then passed to other organisms through food consumption. | |
|  | |  |  | | --- | --- | | **D.** | Sunlight increases the amount of oxygen in the air, which is then converted to the carbon dioxide necessary for photosynthesis. | |
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| **4.** | What are the products of cellular respiration? |
|  | |  |  | | --- | --- | | **A.** | oxygen and sugar | |
|  | |  |  | | --- | --- | | **B.** | oxygen and water | |
|  | |  |  | | --- | --- | | **C.** | carbon dioxide and sugar | |
|  | |  |  | | --- | --- | | **D.** | carbon dioxide and water | |

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| **5.** | Which habit would ***most likely*** lead to increased energy production in cells? |
|  | |  |  | | --- | --- | | **A.** | exercising regularly | |
|  | |  |  | | --- | --- | | **B.** | getting plenty of rest | |
|  | |  |  | | --- | --- | | **C.** | eating fewer fatty foods | |
|  | |  |  | | --- | --- | | **D.** | eating fewer carbohydrates | |

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| **6.** | Which characteristic do all single-celled and multicellular organisms have in common? |
|  | |  |  | | --- | --- | | **A.** | They release carbon dioxide as a waste product. | |
|  | |  |  | | --- | --- | | **B.** | They consume other organisms to obtain energy from food. | |
|  | |  |  | | --- | --- | | **C.** | They require oxygen for the production of glucose and water. | |
|  | |  |  | | --- | --- | | **D.** | They take in nutrients and break down the nutrients to release energy. | |

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| **7.** | Which type of diet ***best*** contributes to a healthy lifestyle? |
|  | |  |  | | --- | --- | | **A.** | a diet high in protein and fat | |
|  | |  |  | | --- | --- | | **B.** | a diet high in fruits, vegetables, and fats | |
|  | |  |  | | --- | --- | | **C.** | a diet high in carbohydrates, fruits, and vegetables | |
|  | |  |  | | --- | --- | | **D.** | a diet high in fruits, vegetables, and lean protein | |
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| **8.** | Which activity would supply the ***most*** oxygen to the body for digestion and respiration? |
|  | |  |  | | --- | --- | | **A.** | sit-ups | |
|  | |  |  | | --- | --- | | **B.** | running | |
|  | |  |  | | --- | --- | | **C.** | stretching | |
|  | |  |  | | --- | --- | | **D.** | lifting weights | |

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| **9.** | Which is needed for breaking down food molecules in cells after digestion has occurred? |
|  | |  |  | | --- | --- | | **A.** | carbon dioxide | |
|  | |  |  | | --- | --- | | **B.** | nitrogen | |
|  | |  |  | | --- | --- | | **C.** | oxygen | |
|  | |  |  | | --- | --- | | **D.** | sodium | |

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| **10.** | Which is likely to occur if an individual consumes an abundance of carbohydrates but remains very inactive? |
|  | |  |  | | --- | --- | | **A.** | Less energy is produced, causing fatigue. | |
|  | |  |  | | --- | --- | | **B.** | Blood glucose and energy levels are both decreased. | |
|  | |  |  | | --- | --- | | **C.** | Blood glucose levels increase, and appetite decreases. | |
|  | |  |  | | --- | --- | | **D.** | Extra glucose is stored as body fat, causing weight gain. | |

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| **11.** | Which molecule provided by plants accounts for the energy in a herbivore’s diet? |
|  | |  |  | | --- | --- | | **A.** | glucose | |
|  | |  |  | | --- | --- | | **B.** | protein | |
|  | |  |  | | --- | --- | | **C.** | salt | |
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| **12.** | Which is ***most*** associated with the building and repair of cells, organelles, and tissues? |
|  | |  |  | | --- | --- | | **A.** | fiber | |
|  | |  |  | | --- | --- | | **B.** | lipid | |
|  | |  |  | | --- | --- | | **C.** | sugar | |
|  | |  |  | | --- | --- | | **D.** | protein | |

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| **13.** | What hormone is used to convert glucose into energy? |
|  | |  |  | | --- | --- | | **A.** | adrenaline | |
|  | |  |  | | --- | --- | | **B.** | estrogen | |
|  | |  |  | | --- | --- | | **C.** | insulin | |

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| **14.** | Which organisms contain chloroplasts to help with food production? |
|  | |  |  | | --- | --- | | **A.** | fungi | |
|  | |  |  | | --- | --- | | **B.** | plants | |
|  | |  |  | | --- | --- | | **C.** | animals | |
|  | |  |  | | --- | --- | | **D.** | paramecia | |

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| **15.** | How does food provide energy? |
|  | |  |  | | --- | --- | | **A.** | Food contains oxygen which cells convert into energy. | |
|  | |  |  | | --- | --- | | **B.** | Food contains fiber which breaks down quickly into energy. | |
|  | |  |  | | --- | --- | | **C.** | Food contains water which is used to store energy for later use. | |
|  | |  |  | | --- | --- | | **D.** | Food contains sugar which is converted into energy through respiration. | |
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| **16.** | What is the source of ***most*** food energy? |
|  | |  |  | | --- | --- | | **A.** | soil | |
|  | |  |  | | --- | --- | | **B.** | wind | |
|  | |  |  | | --- | --- | | **C.** | water | |
|  | |  |  | | --- | --- | | **D.** | sunlight | |

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| **17.** | Which **best** describes how organisms obtain energy from food? |
|  | |  |  | | --- | --- | | **A.** | Food reacts with water to release energy. | |
|  | |  |  | | --- | --- | | **B.** | Food reacts with oxygen to release energy. | |
|  | |  |  | | --- | --- | | **C.** | Food reacts with sunlight to release energy. | |
|  | |  |  | | --- | --- | | **D.** | Food reacts with carbon dioxide to release energy. | |

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| **18.** | Which ***best*** describes the process of photosynthesis? |
|  | |  |  | | --- | --- | | **A.** | Carbon dioxide and oxygen are converted into glucose and water. | |
|  | |  |  | | --- | --- | | **B.** | Carbon dioxide and water are converted into glucose and oxygen. | |
|  | |  |  | | --- | --- | | **C.** | Oxygen and glucose are converted into carbon dioxide and water. | |
|  | |  |  | | --- | --- | | **D.** | Oxygen and water are converted into carbon dioxide and glucose. | |

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| **19.** | Which **best** describes the nutrients that are sources of energy for the body? |
|  | |  |  | | --- | --- | | **A.** | fats and proteins | |
|  | |  |  | | --- | --- | | **B.** | fats and carbohydrates | |
|  | |  |  | | --- | --- | | **C.** | water and carbohydrates | |
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| **20.** | Crystal needs more protein in her diet. Which food sources will **best** provide the building blocks she needs? |
|  | |  |  | | --- | --- | | **A.** | beans, poultry, and meat | |
|  | |  |  | | --- | --- | | **B.** | vegetables, seeds, and fats | |
|  | |  |  | | --- | --- | | **C.** | fruits, water, and dairy products | |

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| **21.** | Which organism gets nutrients from animals and plants? |
|  | |  |  | | --- | --- | | **A.** | fungi | |
|  | |  |  | | --- | --- | | **B.** | bacteria | |
|  | |  |  | | --- | --- | | **C.** | humans | |

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| **22.** | Which **best** describes respiration? |
|  | |  |  | | --- | --- | | **A.** | a cell process that releases energy from food | |
|  | |  |  | | --- | --- | | **B.** | a cell process that converts carbon dioxide into energy | |
|  | |  |  | | --- | --- | | **C.** | a plant process where sunlight is converted into energy | |
|  | |  |  | | --- | --- | | **D.** | a plant process where chlorophyll produces sugar energy | |

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| **23.** | Which would **most likely** contribute to better digestion and respiration? |
|  | |  |  | | --- | --- | | **A.** | eating junk food | |
|  | |  |  | | --- | --- | | **B.** | frequent exercise | |
|  | |  |  | | --- | --- | | **C.** | playing video games | |
|  | |  |  | | --- | --- | | **D.** | regular visits to a doctor | |
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| **24.** | **After a person eats, the food is converted into energy by** |
|  | |  |  | | --- | --- | | **A.** | muscles. | |
|  | |  |  | | --- | --- | | **B.** | tissues. | |
|  | |  |  | | --- | --- | | **C.** | bones. | |
|  | |  |  | | --- | --- | | **D.** | cells. | |

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| **25.** | In cellular respiration, approximately 38% of the energy contained in glucose is released for an organism to use in carrying out life processes. Which ***best*** explains what happens to the remaining 62% of the energy contained in glucose? |
|  | |  |  | | --- | --- | | **A.** | The energy is used to start the process of cellular respiration when more glucose is consumed by the organism. | |
|  | |  |  | | --- | --- | | **B.** | The energy is used to convert leftover glucose into protein to be stored by the cells of the organism. | |
|  | |  |  | | --- | --- | | **C.** | The energy is stored by the cells and released later when needed by the organism. | |
|  | |  |  | | --- | --- | | **D.** | The energy is converted to thermal energy, which provides heat to the organism. | |

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| **26.** | Which is ***most likely*** a potential high risk health problem for someone who consumes a diet high in sugar and fat and low in protein and fiber? |
|  | |  |  | | --- | --- | | **A.** | obesity | |
|  | |  |  | | --- | --- | | **B.** | blindness | |
|  | |  |  | | --- | --- | | **C.** | lung cancer | |
|  | |  |  | | --- | --- | | **D.** | stomach ulcers | |

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| **27.** | Which part of a plant captures the light energy used in photosynthesis? |
|  | |  |  | | --- | --- | | **A.** | guard cells | |
|  | |  |  | | --- | --- | | **B.** | chlorophyll | |
|  | |  |  | | --- | --- | | **C.** | roots | |
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| **28.** | Which molecule is a product of respiration? |
|  | |  |  | | --- | --- | | **A.** | carbon dioxide | |
|  | |  |  | | --- | --- | | **B.** | glucose | |
|  | |  |  | | --- | --- | | **C.** | oxygen | |
|  | |  |  | | --- | --- | | **D.** | protein | |

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| **29.** | Which is the main source of energy used in all body processes? |
|  | |  |  | | --- | --- | | **A.** | fats | |
|  | |  |  | | --- | --- | | **B.** | protein | |
|  | |  |  | | --- | --- | | **C.** | glucose | |

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| **30.** | High levels of glucose in the blood may be a symptom of which disease? |
|  | |  |  | | --- | --- | | **A.** | asthma | |
|  | |  |  | | --- | --- | | **B.** | cancer | |
|  | |  |  | | --- | --- | | **C.** | diabetes | |
|  | |  |  | | --- | --- | | **D.** | heart disease | |

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| **31.** | What process uses oxygen and food molecules to produce energy for animal cells? |
|  | |  |  | | --- | --- | | **A.** | digestion | |
|  | |  |  | | --- | --- | | **B.** | glycolysis | |
|  | |  |  | | --- | --- | | **C.** | respiration | |
|  | |  |  | | --- | --- | | **D.** | photosynthesis | |
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| **32.** | Human cells need energy to survive. From which source does this energy originally come? |
|  | |  |  | | --- | --- | | **A.** | algae | |
|  | |  |  | | --- | --- | | **B.** | animals | |
|  | |  |  | | --- | --- | | **C.** | plants | |
|  | |  |  | | --- | --- | | **D.** | sunlight | |
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| **33.** | Which organism ***most likely*** uses energy from food for locomotion and transportation? |
|  | |  |  | | --- | --- | | **A.** | fungi | |
|  | |  |  | | --- | --- | | **B.** | bacteria | |
|  | |  |  | | --- | --- | | **C.** | humans | |

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| **34.** | Which is necessary for a plant to convert the energy of the sun into energy it can use? |
|  | |  |  | | --- | --- | | **A.** | calcium chloride | |
|  | |  |  | | --- | --- | | **B.** | chlorophyll | |
|  | |  |  | | --- | --- | | **C.** | glucose | |
|  | |  |  | | --- | --- | | **D.** | oxygen | |
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| **35.** | Crystal is trying to increase the protein in her diet. Which foods will **best** satisfy this nutritional need? |
|  | |  |  | | --- | --- | | **A.** | peas, fish, milk, and beans | |
|  | |  |  | | --- | --- | | **B.** | apples, carrots, juice, and rice | |
|  | |  |  | | --- | --- | | **C.** | kiwi, lettuce, tea, and strawberries | |
|  | |  |  | | --- | --- | | **D.** | watermelon, spinach, coffee, and pasta | |

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| **36.** | Which is ***most likely*** part of a healthy lifestyle? |
|  | |  |  | | --- | --- | | **A.** | daily exercise | |
|  | |  |  | | --- | --- | | **B.** | carbohydrate-rich diet | |
|  | |  |  | | --- | --- | | **C.** | maintaining a high body mass index | |
|  | |  |  | | --- | --- | | **D.** | diet low in vegetables and lean proteins | |

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| **37.** | Which diet would ***most likely*** increase personal health? |
|  | |  |  | | --- | --- | | **A.** | high in fiber, high in fat | |
|  | |  |  | | --- | --- | | **B.** | high in fiber, low in fat | |
|  | |  |  | | --- | --- | | **C.** | low in fiber, high in fat | |
|  | |  |  | | --- | --- | | **D.** | low in fiber, low in fat | |

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| **38.** | Which **best** describes the process by which the energy from the sun is used to create glucose molecules? |
|  | |  |  | | --- | --- | | **A.** | fermentation | |
|  | |  |  | | --- | --- | | **B.** | photosynthesis | |
|  | |  |  | | --- | --- | | **C.** | chemosynthesis | |
|  | |  |  | | --- | --- | | **D.** | cellular respiration | |

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| **39.** | Which ***most accurately*** describes how plants and animals obtain the energy they need for growth and survival? |
|  | |  |  | | --- | --- | | **A.** | Molecules are broken down during respiration to release stored energy. | |
|  | |  |  | | --- | --- | | **B.** | Molecules are broken down during photosynthesis to release stored energy. | |
|  | |  |  | | --- | --- | | **C.** | Animals produce energy through photosynthesis, while plants produce energy through respiration. | |
|  | |  |  | | --- | --- | | **D.** | Animals produce energy through respiration, while plants produce energy through photosynthesis. | |

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| **40.** | Which **best** describes the purpose of food? |
|  | |  |  | | --- | --- | | **A.** | to kill bacteria | |
|  | |  |  | | --- | --- | | **B.** | to prevent disease | |
|  | |  |  | | --- | --- | | **C.** | to eliminate waste materials | |
|  | |  |  | | --- | --- | | **D.** | to provide fuel for cell processes | |
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