

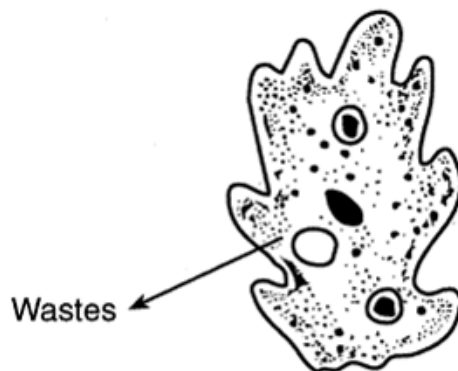
Keystone Review 2

Grade: «grade»
Subject: «subject»
Date: «date»

Apr 11-8:42 AM

1

A single-celled organism is represented in the diagram below. An activity is indicated by the arrow.



If this activity requires the use of energy, which substance would be the source of this energy?

- (1) DNA
- (2) ATP
- (3) a hormone
- (4) an antibody

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2

Which activity would stimulate the human immune system to provide protection against an invasion by a microbe?

- (1) receiving antibiotic injections after surgery
- (2) choosing a well-balanced diet and following it throughout life
- (3) being vaccinated against chicken pox
- (4) receiving hormones contained in mother's milk while nursing

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3

The most immediate response to a high level of blood sugar in a human is an increase in the

- (1) muscle activity in the arms
- (2) blood flow to the digestive tract
- (3) activity of all cell organelles
- (4) release of insulin

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4

Certain microbes, foreign tissues, and some cancerous cells can cause immune responses in the human body because all three contain

- | | |
|--------------|---------------|
| (1) antigens | (3) fats |
| (2) enzymes | (4) cytoplasm |

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5

In an experiment, DNA from dead pathogenic bacteria was transferred into living bacteria that do not cause disease. These altered bacteria were then injected into healthy mice. These mice died of the same disease caused by the original pathogens. Based on this information, which statement would be a valid conclusion?

- (1) DNA is present only in living organisms.
- (2) DNA functions only in the original organism of which it was a part.
- (3) DNA changes the organism receiving the injection into the original organism.
- (4) DNA from a dead organism can become active in another organism.

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6

Dodder is a creeping vine that is parasitic on other plants. Which characteristic does dodder share with all other heterotrophs?

- (1) It produces nutrients by photosynthesis.
- (2) It must grow in bright locations.
- (3) It consumes preformed organic molecules.
- (4) It remains in one place for its entire life.

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7

Studies of fat cells and thyroid cells show that fat cells have fewer mitochondria than thyroid cells. A biologist would most likely infer that fat tissue

- (1) does not require energy
- (2) has energy requirements equal to those of thyroid tissue
- (3) requires less energy than thyroid tissue
- (4) requires more energy than thyroid tissue

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8

When a certain plant is without water for an extended period of time, guard cells close openings in the leaves of the plant. This activity conserves water and illustrates

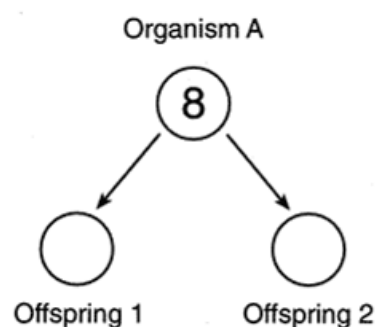
- (1) cellular communication involving the action of nerve cells and receptor sites
- (2) an increase in rate of growth due to a low concentration of water
- (3) maintenance of a dynamic equilibrium through detection and response to stimuli
- (4) a response to one biotic factor in the environment

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9

Punch in the correct number.

The diagram below represents reproduction of single-celled organism A, which has a normal chromosome number of 8.



In the circles representing offspring 1 and offspring 2, write the number of chromosomes that result from the normal asexual reproduction of organism A. [1]

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10

Which process usually uses carbon dioxide molecules?

- (1) cellular respiration
- (2) asexual reproduction
- (3) active transport
- (4) autotrophic nutrition

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11

Enzymes are used in moving sections of DNA that code for insulin from the pancreas cells of humans into a certain type of bacterial cell. This bacterial cell will reproduce, giving rise to offspring that are able to form

- (1) human insulin
- (2) antibodies against insulin
- (3) enzymes that digest insulin
- (4) a new type of insulin

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12

To determine which colors of light are best used by plants for photosynthesis, three types of underwater green plants of similar mass were subjected to the same intensity of light of different colors for the same amount of time. All other environmental conditions were kept the same. After 15 minutes, a video camera was used to record the number of bubbles of gas each plant gave off in a 30-second period of time. Each type of plant was tested six times. The average of the data for each plant type is shown in the table below.

Average Number of Bubbles Given Off in 30 Seconds

Plant Type	Red Light	Yellow Light	Green Light	Blue Light
<i>Elodea</i>	35	11	5	47
<i>Potamogeton</i>	48	8	2	63
<i>Utricularia</i>	28	9	6	39

Which statement is a valid inference based on the data?

- (1) Each plant carried on photosynthesis best in a different color of light.
- (2) Red light is better for photosynthesis than blue light.
- (3) These types of plants make food at the fastest rates with red and blue light.
- (4) Water must filter out red and green light.

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