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Multiple Choice – ***1 pt each (24)***

Identify the choice that best completes the statement or answers the question and write the letter of the correct answer in the blank provided.

_**B**_ 1. Sugar belongs to the group of nutrients called
A. fats. B. carbohydrates. C. sweets. D. yeasts.

D 2. Donny wanted to find out the percentage of fat in chocolate frosting. He plans to do the fat test on the frosting. Which food should he use as a control?
A. another chocolate frosting B. pure vanilla frosting C. pure chocolate ice cream D. pure vegetable oil

D 3. What is the indicator in the sugar test?
A. carbon dioxide B. sugar C. water D. yeast

B 4. Acids taste
A. sweet. B. sour. C. salty. D. bitter.

B 5. If Peggy eats more food (calories) than she uses,
A. her breathing becomes faster. B. she loses weight.
C. her heart rate increases. D. the extra food is stored as fat.

B 6. When seeds start to grow, we say they have
A. generated. B. germinated. C. granulated. D. graduated.

D 7. In which order do the parts of a plant appear when seeds start to grow?
A. Shoot, root, then leaves B. Root, leaves, then shoot
C. Leaves, shoot, then root D. Root, shoot, then leaves

D 8. _____ are openings on leaves that let gases in and out.
A. Guard cells B. Xylem C. Root hairs D. Stomates

C 9. Why is transpiration an important process in a plant?
A. It keeps the plant from taking in too much water and drowning.
B. It gets rid of unusable water in the plant.
C. It delivers water to every cell in the plant at all times.
D. It helps plants get water from other plants.

C 10. An organism's habitat is
A. how it adapts to changes in the environment. B. the other plants and animals in the area.
C. the place where it lives and gets what it needs for life. D. structures and behaviors that keep it alive.

C 11. Which statement about a microscope is true?
A. Compound microscopes have one lens. B. The position of the focal plane is fixed.
C. A light source is needed to see the objects. D. Objects to be observed are placed on the objective lens.

D 12. Which of the following is NOT a structure found in eukaryotic cells?
A. Nucleus B. Ribosome C. Mitochondrion D. Stomate

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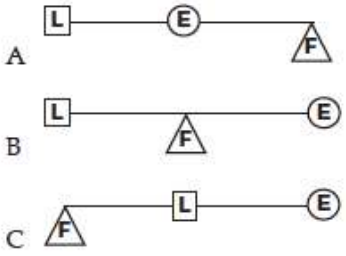
B 13. Microbes in the natural environment are mostly

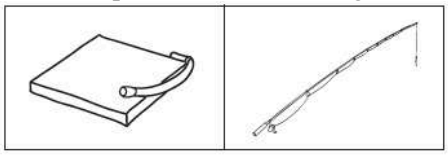
A. consumers. B. decomposers. C. parasites. D. producers.

B 14. Amber used a hammer to pry a nail out of a board. Which of the following diagrams correctly shows where the fulcrum, effort, and load are located on the hammer when it is used this way?

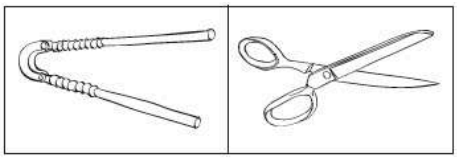


D 15. Which of these pairs of levers belong to the same class?

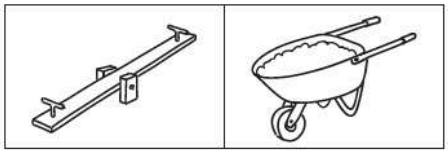
A. a paper cutter and a fishing rod



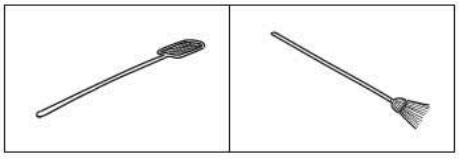
C. a nutcracker and scissors



B. a teeter-totter and a wheelbarrow



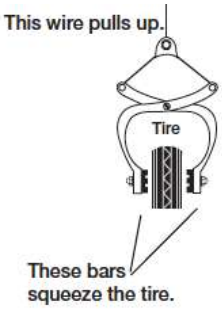
D. a fly swatter and a broom



C 16. The hand brake on a bicycle is a simple machine. The bars that squeeze the tire are examples of a

A. wedge. B. wheel and axle.

C. lever. D. inclined plane.



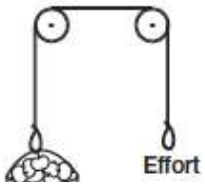
D 17. When a pulley is used to lift a load, as shown in the illustration, the advantage gained is

A. mechanical. B. less work.

C. less friction. D. directional.

A 18. Annie wanted to lift a load of apples. She set up the pulley system you see in the picture. How much effort will Annie need to pull on the rope in order to lift the apples?

A. 400 N B. 200 N C. 800 N D. 450 N



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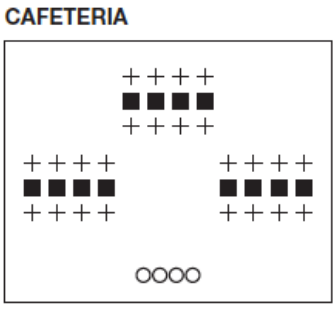
D 19. The box to the right shows a map of a cafeteria, including tables, chairs, and food station. Which of the following is the most reasonable key for this map?

A. ○ Chair
+ Food station
■ Table

B. ○○○○ Chair
+ + + + Food station
■ ■ ■ ■ Table

C. ○ Food station
+ Table
■ Chair

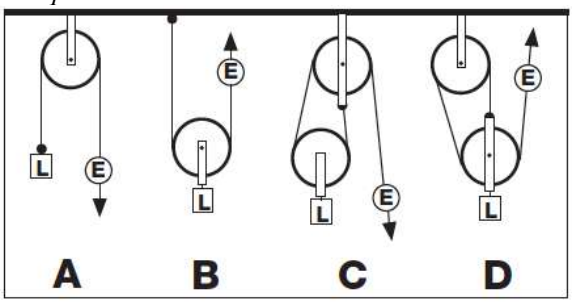
D. ○ Food station
+ Chair
■ Table



D 20. A freeway on-ramp is a simple machine. Which type is it?

A. wedge B. wheel and axle C. lever D. inclined plane

Reference the picture below to answer question 21.

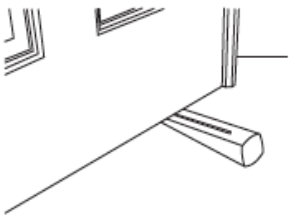


D 21. Which pulley system will provide the greatest mechanical advantage?

A. pulley system A B. pulley system B C. pulley system C D. pulley system D

A 22. A doorstop is a simple machine. Which type is it?

A. wedge B. wheel and axle
C. lever D. inclined plane



C 23. A zip line uses a simple machine to move people from one place to another on a cable. What simple machine is used to move people along the zip line?

A. wedge B. screw
C. pulley D. inclined plane

D 24. What could you change in the lever system pictured below to make it easier to lift the load?

A. Move the effort toward the fulcrum. B. Pull down with the effort rather than up.
C. Move the fulcrum so it is just below the effort. D. Move the effort closer to the load.

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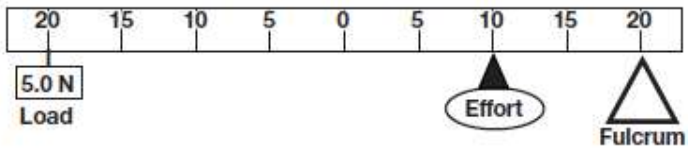
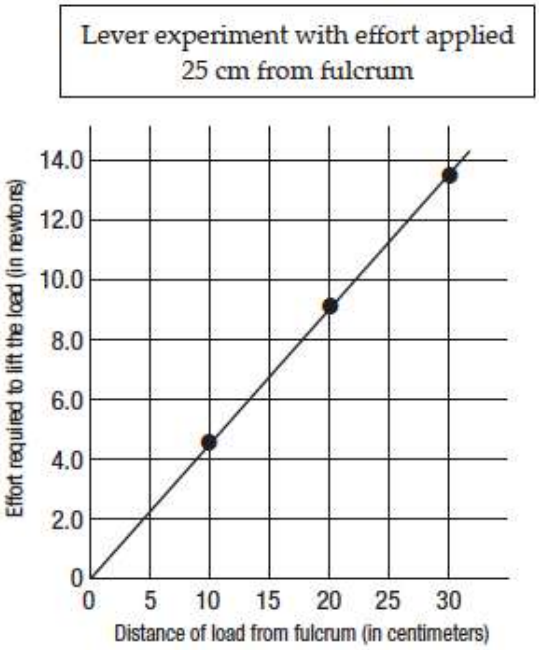


Short Answer *Answer each question in the space provided. Write legibly.*
3 pts each (9)

Study the graph at the right and answer the following questions.



1a. If the load is 13 cm from the fulcrum, how much effort is needed to lift the load?

Approximately 6.0 Newtons

b. If it takes an effort of 10.0 N to lift the load, how far would the effort be from the fulcrum?

Approximately 22 cm

c. What is the relationship between the amount of effort required to lift the load and the distance the load is from the fulcrum?

The farther from the fulcrum the load is, the more effort required to lift the load.

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6a

Code	If the student...
3	indicates the effort is between 5.6 N and 6.4 N (must include correct units).
2	indicates the effort is between 5.6 and 6.4 but does not include units.
1	provides any other answer.
0	makes no attempt.

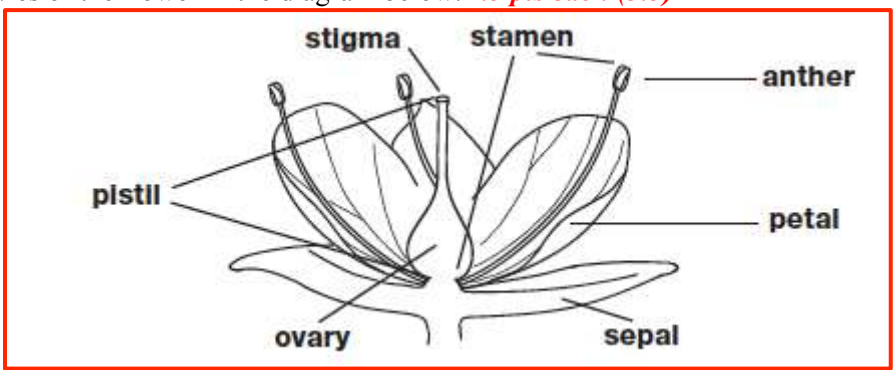
6b

Code	If the student...
3	indicates the distance is between 21 cm and 23 cm (must include correct units).
2	indicates the distance is between 21 and 23 but does not include units.
1	provides any other answer.
0	makes no attempt.

6c

Code	If the student...
2	indicates that the farther from the fulcrum the load is, the more effort is needed (or it's harder) to lift the load.
1	provides any other answer.
0	makes no attempt.

2. **LABEL** the structures of the flower in the diagram below. ***.5 pts each (3.5)***



3. Directions: **LEGIBLY WRITE** the letter L next to each object listed below that is living. **WRITE** the letter N next to each object listed below that is nonliving. ***.5 pts each (6)***

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L mushroom	N waterfall	L pine tree
N robot	N fire	L cactus
L moss	L snail	L tomato seed
N Sun	N bicycle	L hermit crab

4. **STATE** no less than 4 of the things you would look for to determine if something is living. ***4 pts (4)***

grows

eats or consumes nutrients

exchanges gases

responds to stimuli (environment)

reproduces

needs (uses) water

eliminates waste

Content: Correct content is described below.
All content should be correct to score a 4; minor errors are OK to score a 3.

- Characteristics of life include grows, consumes nutrients (eats food), exchanges gases, responds to stimuli, reproduces, needs water, and eliminates waste.
- May include made of cells (introduced in Investigation 3), but should not include movement as a characteristic of life.

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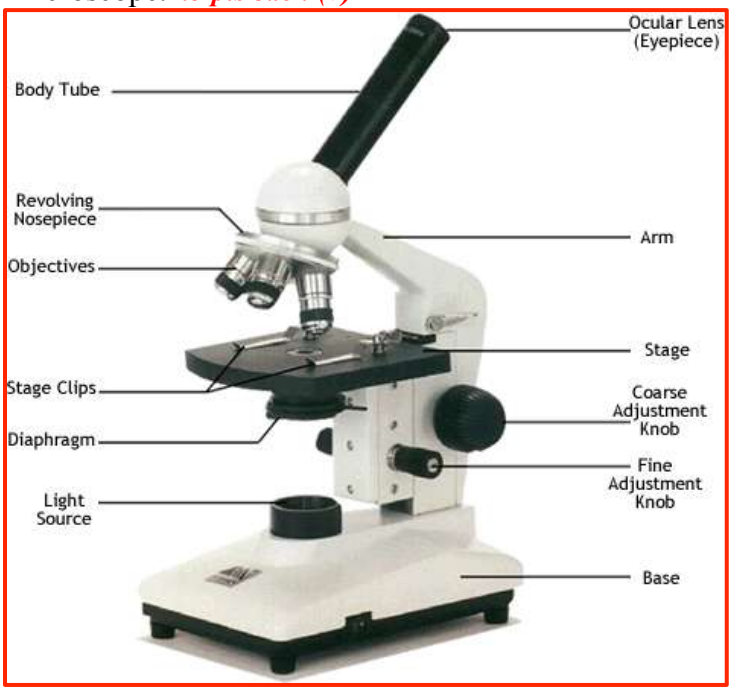
5. **LABEL** the parts of the microscope. ***.5 pts each (7)***



Answer each question in the space provided. Write legibly and in complete sentences taking care to use proper sentence structure. Address each aspect of the question in your answer.

6. Anna wants to compare the fat in walnuts and in peanuts, but she isn't sure how.

a. **WRITE** a procedure Anna can use to compare the fat in walnuts and peanuts. ***4 pts (4)***

1. Measure out equal masses of walnuts and peanuts (for example, 1 gram).
2. Smash the samples uniformly in the same-size area on brown paper.
3. Wait (the same time for each).
4. Use a grid to measure the amount of each paper covered by grease spots.

Code	If the student...
4	writes a logical procedure that includes using brown paper as an indicator and treating both foods in the same way (i.e. someone could duplicate the investigation from the procedure described).
3	makes a minor error such as not being specific about smashing the food in the same-size space; must include equal masses of food.
2	provides one or two steps without details.
1	provides any other answer including just mentioning brown paper.
0	makes no attempt.

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b. Using only the results from her experiment, **EXPLAIN** how Anna will know which one, walnuts or peanuts, has more fat. *3 pts (3)*

Anna should compare the size of the grease spots. The sample with the larger grease spot has more fat.

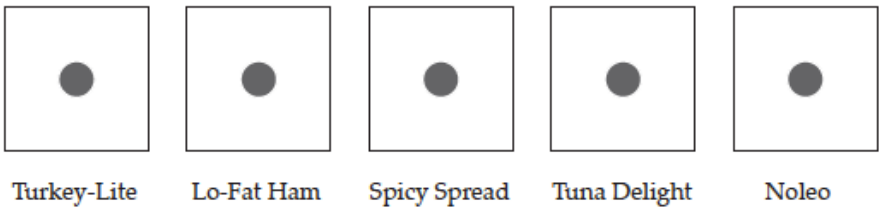
Code	If the student...
3	suggests comparing the size of the grease spots; explains that the larger grease spot means more fat.
2	suggests comparing the size of the grease spots; does not explain what that will tell you.
1	provides any other answer.
0	makes no attempt.

7. **DESCRIBE** the most important difference between prokaryotic cells and eukaryotic cells. *2 pts (2)*

Eukaryotic cells have a nucleus; prokaryotic cells do not have a nucleus.

8. Tina and Artie wanted to find out just how much fat there was in five "low-fat" sandwich spreads. They put 1-g samples of each spread on pieces of brown paper.

This is what the papers looked like when they finished setting up.



Two days later the papers looked like this when placed under the grids.

a. Put the spreads in order, starting with the spread that contained the least fat. *2 pts (2)*

Noleo ***Turkey-Lite*** ***Lo-Fat Ham*** ***Tuna Delight*** ***Spicy Spread***

least most

Code	If the student...
2	puts the spreads in the correct order from least fat to most fat: Noleo, Turkey-Lite, Lo-Fat Ham, Tuna Delight, and Spicy Spread.
1	provides any other answer.
0	makes no attempt.

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Raw Benchmark Points	Score Ranges	Proficiency Points	# of Students
0-32	0-49%	1	
32.25-41.75	50-64%	2	
42-44.75	65-69%	3	
45-51	70-79%	4	
52-57.5	80-89%	5	
58-64.5	90-100%	6	