Biology- Fall 2011 Quarterly Study Guide

1. Two students were testing the amount of fertilizer that would best promote the growth of strawberries in a garden. Which of the following could be an unavoidable source of experimental error? (IAE 1b)
2. length of the study

 B. variation in the strawberry plants

 C. the cost of watering the plants

 D. fertilization during the study

1. Based on the graph in Figure 1 below, what is the distance traveled by grandma after 4 hours? (IAE 1a)
2. 8,000 meters
3. 12,000 meters
4. 16,000 meters
5. 24,000 meters

***FIGURE 1* Distance Traveled by Grandma**



1. Looking at the graph above, how long did it take grandma to get to her bingo game located 20,000 meters from her house? (IAE 1a)
2. 2 hours
3. 4 hours
4. 5 hours
5. 6 hours

**FIGURE 2**

Water, 8 drops of indicator, base Diferentiate/Differentiation

r

Water, indicator, Substance Y

Water, indicator, Drano

Water, Vinegar

Water

Water, PH Indicator

3

4

1

2

5

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 |
| **Initial Color** | Clear | Purple | Purple | Purple | Purple |
| **Color after 30 minutes** | Clear | Purple | Orange | Pink | Pink |

1. Looking at the beakers in the experiment above, we see that (IAE 1d)
2. Substance Y is a cell phone
3. Substance Y is a pea plant
4. Substance Y is acidic
5. Substance Y is basic
6. Color the following PH scale according to your biology book on page 43. Add your own acidic substance and basic substance on the blank lines below.

**0 (Acidic) 7 (Basic) 14**

|  |
| --- |
|  |

*Stomach Vinegar* ***\_\_\_\_\_\_\_\_\_\_\_*** *Acid Rain Water Soap* ***\_\_\_\_\_\_\_\_\_\_*** *Draino*

*Acid*

***FIGURE 3***



1. Looking at Redi’s experiment in Figure 3, we see that he was testing his \_\_\_\_\_\_\_\_(IAE 1f)
2. Hypothesis
3. Observation
4. Data
5. Flies
6. If your hypothesis has been supported by multiple experiments, and never proven to be wrong, it can become a(n) \_\_\_\_\_\_\_\_\_(IAE 1f)
7. Theory
8. Inference
9. Conclusion
10. Song
11. How can a hypothesis be tested? (IAE 1f)
12. By performing a controlled experiment
13. By observing results
14. By reading
15. By inference
16. If comparing data in a plant lab, and one group measures in inches, while another group measures in centimeters, this will affect our results because \_\_\_\_\_\_(IAE 1b)
17. Plants like to be measured in inches
18. Experimental error will not allow us to get accurate results
19. Spontaneous generation will cause plants to grow
20. Inches and centimeters are the same so it makes no difference
21. If we wanted to figure out the average height of a male student at Chula Vista High and avoid experimental error, we would (IAE 1b)
22. Measure the heights of 5 males and 3 females in Mr. Swenson’s classroom
23. Measure the heights of 3 random males on campus
24. Measure the heights of 3 male teachers on campus
25. Measure the heights of every male student on campus
26. Looking at the table below, which drink is responsible for the greatest increase in height between ages 10 and 18? (IAE 1d)

|  |  |  |  |
| --- | --- | --- | --- |
| **Beverage** | **Average Height – cm** **(Average Age 10)** | **Average Height – cm** **(Average Age 14)** | **Average Height – cm****(Average Age 18)** |
| Drink “X” | 100 cm | 175 cm | 200 cm |
| Drink “Y” | 100 cm | 150 cm | 175 cm |
| Drink “Z” | 100 cm | 125 cm | 150 cm |

1. Drink X
2. Drink Y
3. Drink Z
4. Inconclusive
5. Which of the following cells could be classified as part of a tree? (Bio 1c)

Picture A Picture B

  

1. Picture A
2. Picture B
3. Both picture A and picture B
4. Neither picture A or picture B
5. Using the following terms, label the pictures in Figure 4 below (Bio 1c)
* Eukaryotic cell
* Prokaryotic cell
* Virus
* Bacteria

***FIGURE 4***

  

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Using Figure 4 above, rank the pictures from smallest to largest (Biol 1c)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. Look at Figure 4 above. Where is DNA located in each of the pictures? (Biol 1d)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. Turn to the person next to you and explain in your own words, for 20 seconds, the relationship between DNA and protein. Write down what you learned here: (Biol 1d) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Looking at Figure 5, if the solute is moving through the protein channel, this is called (Bio 1a)
2. Osmosis
3. Diffusion
4. Facilitated Diffusion
5. Active Transport

***FIGURE 5***

**A**



**C**

**B**

1. Looking at Figure 5 above, in which direction is energy moving? (Bio 1a)
2. Top to bottom
3. Bottom to top
4. Side to side
5. Energy does not move
6. Looking at Figure 5, name A, B and C (Bio 1a)
7. A: Protein Channel B: Lipid Bilayer C: Carbohydrate
8. A. Lipid Bilayer B. Carbohydrate C. Protein Channel
9. A. Lipid Bilayer B. Protein Channel C. Carbohydrate
10. A. Carbohydrate B. Protein Channel C. Lipid Bilayer
11. What four main macromolecules are humans made of? (Bio 1h)
12. Carbohydrates, lipids, proteins, RNA
13. Carbohydrates, lipids, proteins, blood
14. Carbohydrates, lipids, proteins, water
15. Carbohydrates, lipids, proteins, nucleic acids
16. Of the four main macromolecules we are made of, which could you find in a sugar cookie? (Bio 1h)
17. Lipids
18. Carbohydrates
19. Fatty acids
20. Proteins
21. What is a lipid bilayer made of? (Bio 1h)
22. Glycerol and fatty acids
23. Blood and water
24. Animal cells
25. Two stacks of membranes
26. Which of the following is an example of nucleic acids? (Bio 1h)
27. DNA and RNA
28. Fatty acids
29. Long chain carbohydrates
30. Amino acids

***FIGURE 6***



1. Explain in your own words what happened to the substrate after it bonded with the enzyme in Figure 6 above (Bio 1b)

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1. If we place an enzyme in a beaker of hot water with a low PH, (Bio 1b)
2. The enzyme will not function
3. The enzyme will work better
4. The enzyme will not be affected
5. The enzyme will turn into a carbohydrate
6. Two identical twins have the same proteins that affect skin color. When researchers look at these proteins, they see that (Bio 4e)
7. Proteins have the same number of amino acids which are in the same sequence (order)
8. Twins have proteins which have the same number of amino acids
9. Twins have proteins which are in the same sequence but have different numbers of peptide bonds
10. Everyone has the same proteins so we’re all clones
11. If we connect 3 amino acids with peptide bonds as shown in Figure 7 below, what do we get? (Bio 1h)
12. Protein
13. Carbohydrate
14. Lipid Bilayer
15. Phospholipid

***FIGURE 7***



1. Using Figure 8 below, write down the reasons your teacher gives you on the differences in speed of the following enzyme-substrate reactions (Bio 1h):

27 ***FIGURE 8***