

Biology 10
Lab Practical 1 Answer Key
Wednesday Section

1. Is Lake Merritt really a lake? If not, what is it?

No, it is an estuary or tidal lagoon with brackish water (mix of salt and fresh water, although it is more on the salty side). It is natural, not man-made.

2. What caused the water level in Lake Merritt to change?

The tides, since it is connected to SF Bay.

3. What is the length, in mm, of this card?

128 mm

4. What does the first m in mm stand for?

Milli-

5. What is $\frac{3}{4}$ expressed as a decimal?

0.75

6. What is $\frac{3}{4}$ expressed as a percentage?

75%

7. In the Lake Merritt experiment, we graphed the water level on the shore of Lake Merritt against time. What variable went on the y-axis (the dependent variable)?

Water level

8. In the Lake Merritt experiment, we graphed the water level on the shore of Lake Merritt against time. What variable went on the x-axis (the independent variable)?

Time

9. These two slides are stuck together with water in between. What is the property that describes why it is hard to pull them apart?

Adhesion

10. What is the word to describe the combination of cohesion and adhesion?

Capillarity

11. Is this solution an acid or a base?

Base

12. Say the pH of the solution is 10. How much more acidic is a solution with a pH of 8?

100 times more

13. In lab, we tested for the presence of buffers in solution. How do buffers affect pH?

Buffers prevent the pH from changing

14. Why are buffers important in an organism's cells?

Cells are very sensitive to changes in pH; if the pH were to change without buffers present, key proteins would be denatured and the organism would die.

15. What happens when you put ice in liquid water?

It floats, because ice is less dense than liquid water

16. What is the word for how spread out molecules are?

Density

17. What is the definition of a polar covalent bond?

A bond between two atoms in which electrons are unequally shared due to the difference in electronegativity of the atoms (one atom pulls electrons closer to it, resulting in a slight negative charge for that atom and a slight positive charge for the other atom).

18. Is this microscope in the correct start position?

No, the stage is not fully lowered, the 10x objective lens is in place, and the light is not on the lowest setting.

19. When changing the objective lens from 10x to 40x, does the field of view get bigger or smaller?

Smaller

20. What is the total magnification of this microscope as it is set up?

40x (10x times 4x)

21. What are the monomers of proteins?

Amino acids

22. In the protein experiment, the addition of Biuret reagent in the presence of what type of bond turned the solution purple?

Peptide bond

23. What is the molecular formula of glucose?

$C_6H_{12}O_6$

24. Is glucose a monosaccharide, disaccharide, or polysaccharide?

Monosaccharide

25. A candy bar with 200 Calories per serving on the nutrition label has how many actual calories in it (hint: what is the difference between a calorie with a lowercase c and a Calorie)?

200,000 calories

26. What is the difference between a saturated and unsaturated fat?

Saturated fats have no double bonds in their fatty acid tails, while unsaturated fats do

27. What is this organelle?

Central vacuole

28. What is its function?

Stores nutrients, contains pigments, contains poisons against herbivores, absorbs water and causes cells to expand

29. What is this organelle?

Rough endoplasmic reticulum

30. What is its function?

To make and modify proteins

31. What is this organelle?

Mitochondrion

32. What is its function?

The site of stages 2 and 3 in cell respiration, which produces ATP

33. What is this organism?

Bacteria/Prokaryote

34. Does it have a nucleus?

No

35. What domain does this organism belong to?

Eukarya

36. If we estimated that this organism takes up 50% of the field of view, and the diameter of the field of view is 1.6 mm, what is the approximate size of the organism?

0.8 mm

37. Why does this organism appear green?

The pigment chlorophyll within the chloroplasts absorbs visible light in all wavelengths except for the color green, which is reflected

38. Where else besides the chloroplasts do plants store pigments?

Central vacuole

39. In the slide of the onion that you prepared, why were there no chloroplasts visible?

The onion is part of the root system, which is underground, and therefore not photosynthetic

40. What organelle was visible in the slide of your cheek cells?

Nucleus

41. What level of structure is the three-dimensional shape of a protein?

Tertiary

42. We did an experiment where we added iodine to various solutions to test for the presence of starch. Why did we use starch as one of our test solutions?

To establish a control for comparison with the other test solutions

43. What do microscope lenses do to light?

They bend, or refract light, resulting in a magnified image

Extra Credit:

What is the Laney College mascot?

Eddie the Eagle

What did Nekeya bring to class for all of us?

Donut holes