

Name \_\_\_\_\_

Biology 102, Spring 2008

Sec. # \_\_\_\_\_

Lab 1: Microscopy & Cell Diversity

Answer the following questions in your OWN words and in COMPLETE sentences.

1. (1 pt) Metric system:

7 kilometers = \_\_\_\_\_ meters = \_\_\_\_\_ centimeters = \_\_\_\_\_ millimeters

5 kilograms = \_\_\_\_\_ grams = \_\_\_\_\_ milligrams

2.5 liters = \_\_\_\_\_ milliliters = \_\_\_\_\_ microliters

Choose a coin (penny, nickel, dime, quarter). Measure and record the diameter.

Coin: \_\_\_\_\_ diameter = \_\_\_\_\_ cm = \_\_\_\_\_ mm

2. (1 pt) Write the function of each of the following:

ocular lens -

stage -

substage condenser -

iris diaphragm -

3. (2 pts) Outline the steps you would follow for mounting and focusing a prepared slide on a compound microscope.

4. (1 pt) You prepare a wet mount of living organisms from the aquarium, and observe an interesting specimen. How does the orientation of the image compare to that of the specimen (right-side up or upside down)? The organism then swims to the right of your field of view. In which direction should you move the slide to follow the organism? Explain.

5. (2 pts) Pick four cellular structures from the Cell Diversity Summary Table in the lab exercise. Name and describe their function in greater detail. Mention which specific cell type(s) you can find this structure in (prokaryotes, eukaryotes, plant or animal).

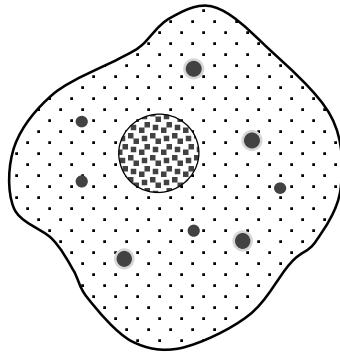
1) \_\_\_\_\_ →

2) \_\_\_\_\_ →

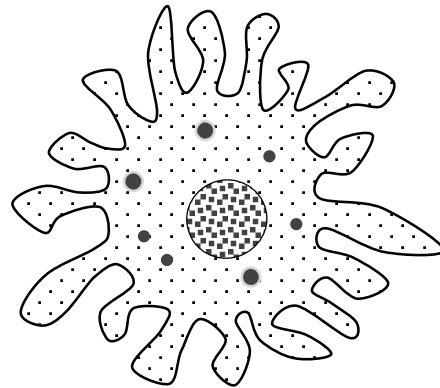
3) \_\_\_\_\_ →

4) \_\_\_\_\_ →

6. (1 pt) The figures below show of two different cells. As you can see from these cross-sections, their shapes are very different but their volumes happen to be identical. Given what you learned in lab about surface-to-volume ratios, can you tell which one of these might be more efficient in terms of taking in nutrients and expelling wastes? Provide a brief explanation to back up your choice.



Cell #1 (c.s.)



Cell #2 (c.s.)

7. (2 pts) Next week in the lab we are going to examine the properties of catalase, an enzyme found in nearly all animal cells and organs (Enzymes, pages 17-30). We are going to look at how three different factors affect this enzyme's activity. What are those three factors? Why is catalase such an important enzyme (hint: what does it do in animal cells)?