**Biology 112 – Teacher: Elaine Levesque-Godin**

**SEXTION 7-1 - THE CELL THEORY/MICROSCOPE TECHNIQUES – Value 40**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: Feb 16, 2018 DUE: FEBRUARY 21/18**

1. The most commonly used microscope(s) is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ microscope. **1 pt.**
2. Organisms whose cells lack nuclei are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells. **1 pt.**
3. Examples of prokaryotic cells include all \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. **1 pt.**
4. True or False: In multicellular organisms, the well-being of the organism is dependent on the activity of all its cells. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **1 pt.**
5. The diaphragm of a compound light microscope is to regulate the amount of light passing up toward the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  **1 pt.**
6. The wavelengths of electron microscopes are much \_\_\_\_\_\_\_\_\_\_\_\_\_\_ than those of light. **1 pt.**
7. The German biologist Theodor Schwann concluded that \_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells were made of cells. **1 pt.**
8. The German botanist Matthias Schleiden concluded that all \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells were made of cells. **1 pt.**
9. The following are based on questions in regards to the compound [light] microscope and prelab discussions.
10. In preparing “wet mount” slide, the cover slip is placed on a 45 degree angle and gently lowered on the specimen on the slide. Why? **2 pts.**

**ANS: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. Why would stain (solution iodine) be used in preparing a slide to view the onion (peel) in the microscope lab? **2 pts.**

**ANS: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. **TRUE OR FALSE** **Value 8**
2. (TRUE / FALSE ) All livings things are composed of cells.
3. (TRUE / FALSE ) Bacteria are organisms whose cells contain nuclei.
4. (TRUE / FALSE ) Information gathered from observations is called data.
5. (TRUE / FALSE ) Some eukaryotic cells live solitary lives as single celled organisms.
6. (TRUE / FALSE ) Robert Hooke viewed “tiny compartments” of a piece of cork slice which he named cells using an early compound microscope.
7. (TRUE / FALSE ) Prokaryotes are the most plentiful on earth and are able to survive in a wide array of habitats.
8. (TRUE / FALSE ) Always use the course adjustment knob forward while looking through the eyepiece and always with the high power objective.
9. (TRUE / FALSE ) The total of the magnification of the microscope is equal to the magnification of the eyepiece times the magnification of the objective used.
10. Match the ***parts of the microscope*** with the ***functions*** ***or descriptions*** provided on the right: **14 pts.**
11. Opening of the stage \_\_\_\_\_\_\_\_\_ moves the body tube slightly up to sharpen the image
12. Stage clips \_\_\_\_\_\_\_\_\_ permits light to pass up to the eyepiece
13. Body tube \_\_\_\_\_\_\_\_\_ supports the slides being observed
14. Fine adjustment knob \_\_\_\_\_\_\_\_\_ moves the body tube to focus the image
15. Coarse adjustment knob \_\_\_\_\_\_\_\_\_ produces light or reflects light up toward the eyepiece
16. Stage \_\_\_\_\_\_\_\_\_ maintain the proper distance between the eyepiece and objectives
17. Eyepiece \_\_\_\_\_\_\_\_\_ provides a magnification of 4X, the shortest objective
18. Nosepiece \_\_\_\_\_\_\_\_\_ regulates the amount of light passing up towards the eyepiece
19. Low-power objective \_\_\_\_\_\_\_\_\_ hold the slide in place
20. Base \_\_\_\_\_\_\_\_\_ provides a magnification of 40X, the longest objective
21. Arm \_\_\_\_\_\_\_\_\_ holds the objective, can rotate to change the magnification
22. Illuminator/light \_\_\_\_\_\_\_\_\_ supports the microscope
23. Diaphragm \_\_\_\_\_\_\_\_\_ supports the body tube
24. High-power objective \_\_\_\_\_\_\_\_\_ contains a magnifying lens (10x)
25. Determine the *total magnification* when utilizing the following objectives: **3 pts.**
    1. 4X = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_
    2. 10X = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_
    3. 40X = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_
26. A student determined the field of view using the low-power objective as 3.4mm. The student determined there were 24 equal sized specimens across the diameter of the field of view. Determine what size (in micrometers) each specimen would calculate to be. Show how you determine the answer below. **3 pts.**

**TOTAL VALUE 40**