Name:_____ Seat # _____

Date: ____/____/____ Periods_____

Do not write in pencil (use pen).
Do not use **Liquid Paper** (draw one line through error).
Please staple all work.

Pipetting Lab
Lab 3

Purpose(s): The purpose of this lab is to learn how to pipette correctly so that accurate reagents can be made.

Materials:
1. 1 Volumetric pipette
2. 1 Ostwald pipette
3. 1 Mohr pipette
4. 1 Serologic pipette
5. 1 Pipette bulb
6. Test tubes (five per student)
7. Test tube rack
8. 250 ml Beaker/flask of colored solution (one per student)
9. 500 ml Beaker of water (one per two students)
10. Kimwipe (paper towel)
11. Work Mat (Paper towel)
12. Laboratory coat

Procedure: Part 1

1. Select the volumetric pipette, and hold it in your dominant hand.
2. Place the pipette bulb in your non-dominant hand and squeeze it.
3. Attach the pipette bulb to the mouth of the pipette.
4. Place the tip of the pipette into the fluid and draw up fluid by releasing pressure on the pipette bulb. Make sure to draw up a little excess fluid pass the fill line, then place your index finger (still using your dominant hand) over the top of the pipette. Apply pressure so that the fluid does not leak from the pipette.
5. Wipe the tip of the pipette with a Kimwipe or paper towel.
6. Adjust the meniscus to the desired line of the pipette by gently releasing the pressure applied by your index finger until the liquid starts to flow out slowly.
7. Deliver the fluid to the test tube. Make sure to hold the pipette at eye level, hold it vertically, and let it drain slowly.
8. Use the bulb to blow out the last drop if there is an etched ring on the pipette.
9. Read General considerations listed below
10. Select the ostwald pipette, and hold it in your dominant hand. Repeat steps 2-8.
11. Select the serologic pipette, and hold it in your dominant hand.
12. Repeat steps 2-8.
13. Select the mohr pipette, and hold it in your dominant hand.
14. Repeat steps 2-8.
15. Select the mohr pipette, and hold it in your dominant hand.
16. Repeat steps 2-8. This time, do not go all the way to the fill line to same time.
17. Pour the liquid in all five tubes back into the beaker of colored solution.
18. Select the mohr pipette, and hold it in your dominant hand.
19. Your are going to repeat steps 1-7, and dispense 10 ml into the five different test tubes.
20. In tube 1 place 1 ml, place 2 ml in tube 2, place 3 ml in tube 3, place 1 ml in tube 4, and place 3 ml in tube 5. Because the mohr pipette is not calibrated to the tip, discard the remaining fluid into your beaker of colored solution.
21. Pour the liquid in all five tubes back into the beaker of colored solution. This time decant all tubes very well or it will affect your next step.

General Considerations

a. Always use pipette bulb. NO MOUTH PIPETTING!!
b. Use the pipette that is closest in size to the volume you want to deliver.
c. Check for etched rings indicating that the last drop should be blown out.
d. Choose the proper type of pipette:

Ostwald - for viscous fluids
Mohr and Serologic - for delivering several different volumes
Volumetric - for accuracy in making controls and standards

Procedure continued: **Part 2** Serial Dilution: See serial dilution notes to aid in following procedure

1. Place 5 tubes in a test tube rack.
2. Add 1 mL of diluent (water) to tubes 2 - 5.
2. Add 1 mL of colored solution in tubes 1 and 2. Tube 1 will remain a 1:1 dilution and nothing else will be added. Tube 2 should have 2 ml (1 ml of diluent and 1 ml of colored solution) making it a 1:2 dilution.
4. Mix and transfer 1 mL of mixture from tube 2 and place it in tube 3. Tube 3 should now have 2 mL.
5. Mix and transfer 1 mL of mixture from tube 3 and place it in tube 4. Tube 4 should now have 2 mL.
6. Mix and transfer 1 mL of mixture from tube 4 and place it in tube 5. Tube 5 should now have 2 mL.
7. Mix and transfer 1 mL of mixture from tube 5 and place it back into the original large beaker of colored solution.
8. When you are finished, put your tubes in a special rack and bring it to the teacher for approval. Also, bring your lab sheet for a stamp of approval by the teacher.
9. Replace and dispose of all supplies and equipment according to instructor (also see lab disposal book).

(20 points)

Box for stamp of approval

Raw Data/Calculations: N/A

Results (20 points): Part 1

	Pipette	Pipette Volume	Amount Pipetted	Completed (√ box)
1.	Volumetric	4 - 7 mL	_____ (write your pipette size)	☐
2.	Ostwald	1 – 2 mL	_____ (write your pipette size)	☐
3.	Serologic	1 - 5 mL	_____ (write your pipette size)	☐
4.	Mohr	10 mL	4 mL	☐
5.	Mohr	10 mL	6 mL	☐
6.	Mohr	10 mL	1 mL	☐
7.	Mohr	10 mL	2 mL	☐
8.	Mohr	10 mL	3 mL	☐
9.	Mohr	10 mL	1 mL	☐
10.	Mohr	10 mL	3 mL	☐

Normal Range(s N/A

Conclusions (20 points): Write a sentence about your pipette lab experience, good or bad.

Clinical significance (20) points: Write a sentence about the importance of this lab.

Questions (20 points): Short answers please.

1. What type of pipette is volumetric and what is it used for? _____
2. What type of pipette is Ostwald and what is it used for? _____
3. What does the etched ring mean on a pipette? _____
4. What does the T.C. and T.D. stand for and what does it mean? _____
   _____
5. If you had 10 tubes to make a serial dilution using the same procedure, what will your titer be in tube 7? _____