

Name: _____ Seat # _____

Do not write in pencil (use pen).

Do not use Liquid Paper (draw one line through error).

Date: ____/____/____ Periods _____

Please staple all work.

CBC Complete Blood Count Lab

Lab Title

6

Lab Number

Purpose: The purpose of this lab is to learn how to perform and interpret a manual RBC Count and RBC indices, and interpret WBC count and WBC Differential.

Materials:

- | | |
|-------------------------------|-----------------------------------|
| 1. Plastic container w/lid | 8. .1ml (100ul) pipette with tips |
| 2. 20 ml. of .9 NaCl (saline) | 9. Test tube rack |
| 3. Plastic pipette | 10. Hemacytometer |
| 4. Microscope | 11. Work mat (paper towel) |
| 5. EDTA whole blood | 12. Lab Coat |
| 6. Lab Counter | 13. Disinfecting wipes |
| 7. ¼ Paper towel | 14. Biohazard containers |

Procedure for CBC Count: Follow the procedure on the coulter machine.

Procedure for manual RBC Count:

1. Make a 1:200 Dilution using EDTA Whole blood and saline.
(To make a 1:200 dilution of EDTA whole blood, put 20ml of saline in plastic container. Add 100 uL of whole blood using a fixed pipette and pipette tips. Mix gently by inversion. Dilution is stable for 6 hours.)
2. Using a plastic pipette, charge the hemacytometer
3. Count square indicated for RBC Count using Hemacytometer.
4. Multiply value by 10,000 and record data.
5. Replace and dispose of all supplies and equipment according to instructor (also see lab disposal book).
6. Disinfect work area, chair, test tube rack, and any other item that may be contaminated with body fluids.

Raw Data/Calculations (10 points):

Manual RBC Count

Count the center square of the nine (9) large squares on the hemacytometer

Square a _____ (use 101 if no results obtained)

Square b _____ (use 105 if no results obtained)

Square c _____ (use 103 if no results obtained)

Square d _____ (use 99 if no results obtained)

Square e _____ (use 102 if no results obtained)

Total _____ X 10,000 = _____

Manual WBC: Count the WBC's Below & calculate value below

1 • • • • •	2 • • • • • •	3 • • • • •
4 • • • • •	5 • • • • • •	6 • • • • • • •
7 • • • • • •	8 • • • • • • •	9 • • • • • • •

Show RBC Indices calculations here:

When calculating the indices using your RBC count, only use the number value. Example: If RBC count is $4.5 \times 10^6 \text{ mm}^3$, use only 4.5 in your calculations.

Show WBC calculations here for 1:100 dilution:

Results (20 points): Remember to include units!

RBC Count = _____
HCT = _____
Hb = _____
MCV = _____
MCH = _____
MCHC = _____
WBC Count = _____
Platelet Count = _____
Neutrophil Count = _____
Lymphocyte Count = _____
Monocyte Count = _____

Normal Range (10 points): State the normal RBC Count for men and women and RBC Indices.

(men) RBC Count	= _____	(women) RBC Count	= _____
MCV	= _____	Neutrophil Count	_____ (out of 100 WBC's Counted)
MCH	= _____	Lymphocyte Count	_____ (out of 100 WBC's Counted)
MCHC	= _____	Monocyte Count	_____ (out of 100 WBC's Counted)
WBC Count	= _____	Eosinophil Count	_____ (out of 100 WBC's Counted)
Platelet Count	= _____	Basophil Count	_____ (out of 100 WBC's Counted)

Conclusions (20 points): Write a sentence stating if your results were normal or abnormal. If abnormal, state the likely disease and/ or condition associated with your findings. Make sure to interpret all values.

Clinical Significance (20 points): List the diseases and/or conditions associated with the following. Make sure to include high and low conditions.

RBC Count _____
HCT _____
Hb _____
MCV _____
MCH _____
MCHC _____
WBC Count _____
Neutrophil Count _____
Lymphocyte Count _____
Monocyte Count _____
Eosinophil Count _____
Basophil Count _____
Platelet Count _____

Questions (20 points):

1. What is the most common dilution used for the manual RBC Count? _____
2. What dilution was used for the manual WBC count interpretation for this lab? _____
3. What diluents are used for the manual WBC Count? _____
4. What is the purpose of WBC diluents? _____
5. What are hemoglobinopathies and which is the most common? _____
