Lab 6

1. Data Tables

DATA TABLE 1-1 (*purpose*: to measure the wavelength of He-Ne laser)

N	0	50	100	150	200	250
d (mm)						
Δd (mm)	$\Delta d_1=\lvert d_{150}-d_0\rvert =$		$\Delta d_2=\lvert d_{200}-d_{50}\rvert =$		$\Delta d_3=\lvert d_{250}-d_{100}\rvert =$	
$\Delta\bar{d}=\dfrac{\Delta d_{1}+\Delta d_{2}+\Delta d_{3}}{3}$ (mm)						
$\bar{\lambda}=\dfrac{2\Delta\bar{d}}{\Delta m}=\dfrac{2\Delta\bar{d}}{3\times 50}$ (nm)						

DATA TABLE 1-2 (*purpose*: to measure the index of refraction of air)

Room temperature $T=$_____℃； Atmospheric pressure $p=1.01325\times 10^5$ Pa;

$L=95.0$ mm; $\lambda_0=633.0$ nm; $m=60$.

Trial	1	2	3
p_1 (MPa)			
p_2 (MPa)			
$\Delta p=\lvert p_2-p_1\rvert$ (MPa)			
$\Delta\bar{p}=\dfrac{\Delta p_{1}+\Delta p_{2}+\Delta p_{3}}{3}$ (MPa)			
$n=1+\dfrac{\lambda_0}{2L}\dfrac{60}{\Delta\bar{p}}p$			

Instructor's Initial:_____

Lab 7

1. Data Tables

DATA TABLE 2-1 (*purpose*: to measure the apex angle of a prism)

Instrument error:_____

Position of telescope	Left side (position 1)		Right side (position 2)	
Trial	Vernier 1	Vernier 2	Vernier 1	Vernier 2
	θ_1 (°, ')	θ_1'(°, ')	θ_2(°, ')	θ_2'(°, ')
1				
2				
3				
Averaged				

DATA TABLE 2-2 (*purpose*: to measure the wavelengths of lines in the spectra of mercury)

Diffraction order	k=-1(left side)						k=+1(right side)					
Lines	Yellow 2		Yellow 1		Green		Green		Yellow 1		Yellow 2	
Trial	$\varphi_{Y\text{-}L21}$	$\varphi_{Y\text{-}L22}$	$\varphi_{Y\text{-}L11}$	$\varphi_{Y\text{-}L12}$	$\varphi_{G\text{-}L1}$	$\varphi_{G\text{-}L2}$	$\varphi_{G\text{-}R1}$	$\varphi_{G\text{-}R2}$	$\varphi_{Y\text{-}R11}$	$\varphi_{Y\text{-}R12}$	$\varphi_{Y\text{-}R21}$	$\varphi_{Y\text{-}R22}$
1												
2												
Averaged												

Instructor's Initial:_____

Lab 8

1. Data Tables

DATA TABLE 3-1 (Measured by manual mode. *purpose*: to determine the first excitation potential of argon atom)

$$V_1=\underline{\hspace{2cm}}; V_2=\underline{\hspace{2cm}}; V_3=\underline{\hspace{2cm}};$$

(The unit of the current in the following table is _____)

	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
0										
10										
20										
30										
40										
50										
60										
70										

Instructor's Initial:_____

DATA TABLE 3-2 (Measured by computer. *purpose*: to determine the first excitation potential of argon atom)

$V_1=$_____; $V_2=$_____; $V_3=$_____;

(The unit of the current in the following table is _____)

	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
0										
10										
20										
30										
40										
50										
60										
70										

Instructor's Initial:_____

DATA TABLE 3-3 (Measured by computer. *purpose*: to determine the first excitation potential of argon atom)

$V_1=$_____; $V_2=$_____; $V_3=$_____;

(The unit of the current in the following table is _____)

	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
0										
10										
20										
30										
40										
50										
60										
70										

Instructor's Initial:_____

Lab 9

1. **DATA TABLE 4-1** (*purpose*: to measure the electric charges carried by an oil droplet)

Oil droplets	Balance voltage V(v)		Fall time t(s)	
	Measurement	Averaged	Measurement	Averaged
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Instructor's Initial:_____

Lab 10

1. Data Tables

DATA TABLE 7-1 (*purpose*: to measure the stopping potentials for different lights)

Wavelength (nm)	Frequency (Hz)	Stopping potential (V)
365		
405		
436		
546		
577		

DATA TABLE 7-2 (*purpose*: to measure current-voltage characteristics of the photoelectric tube)

$\Delta V / V$	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	12.0
d=30cm, I / 10^{-11}A								
d=40cm, I / 10^{-11}A								
$\Delta V / V$	14.0	16.0	18.0	20.0	22.0	24.0	28.0	30.0
d=30cm, I / 10^{-11}A								
d=40cm, I / 10^{-11}A								
$\Delta V / V$	32.0	34.0	36.0	38.0	40.0	43.0	46.0	50.0
d=30cm, I / 10^{-11}A								
d=40cm, I / 10^{-11}A								

Instructor's Initial:_____

Lab 11

1. **Data Tables**

DATA TABLE 8-1 (*purpose*: to measure the emf produced by a thermocouple)

Room temperature _____ Multiple of the potentiometer_____

Temperature, $T(\text{℃})$	35	45	55	65	75	85
Thermal emf, E_x (mV)						

Instructor's Initial:_____