Experiment Number-02

Name of the Experiment: To calibrate a Polarimeter and hence to determine the specific rotation of a sugar solution by means of a Polarimeter.

Data Collection:

Table for angular rotation

Strength of sugar solution (%)	**No. of obs**	**First reading with water (P)**	**Second reading with solution (Q)**	**Angular rotation (Q~P)**	**Mean angular rotation**	**Specific rotation (s)**
20%						
10%						
5%						

Specific rotation = $\frac{10\theta}{lc}$

Experiment Number-3

Experiment Name: Determination of moment of inertia of a flywheel about its axis of rotation.

Data Collection:

Table 1: Determination of n_1, n_2 and t:

Mass M gm	Height h cm	No. of Revolutions n_1	Average n_1	No. of Revolutions n_2	Average n_2	Time t	Average t	Moment of Inertia I	Average I

Table 2: Determination of the radius of the axle:

LSR (X) (cm)	VSD	VC (cm)	VSR Y =(VSD×VC) (cm)	Total Reading = X+Y cm	Average Diameter cm	Radius r cm

Calculation:

$\omega = \frac{4\pi n_2}{t}$ and I = $\frac{2mgh - m\ \omega^2 r^2}{\omega^2(1+\frac{n_1}{n_2})}$

Experiment Number-4

Name of the Experiment: To determine the Specific resistance of a wire using a Meter Bridge

Data Collection:

Table 1: Reading for the Galvanometer balance point.

No. of observation	**Value of resistance, R(Ω)**	**Length,l cm**	**$(100-l)$ cm**	**$X=\frac{R(100-l)}{l}$ (Ω)**	**Mean X(Ω)**
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

Table 2: Reading for the radius of the experimental wire. (Using Slide Calipers)

No. of obs.	Liner scale reading (L.S.R) cm	Circular scale divisions (C.S.D)	Least count (L.C) cm	Circular scale reading (C.S.R) = (CSD x L.C) cm	Total diameter D cm	Mean diameter D cm	Mean radius r=D/2 cm
1							
2							
3							

Specific Resistance

$$\rho = \frac{\pi r^2 X}{L}$$

Experiment Number-5

Name of the Experiment: To determine the e.m.f of a cell with a potentiometer of known resistance

Data collection:

(A) Resistance of the potentiometer wire, R = 72 Ω

(B) Total length of the potentiometer, L= 1000 cm.

No. of obs.	Miliammeter readings = i mA	Null points		Total length for balance l cm	e.m.f of the cell $E=\frac{iRl}{1000L}$ Volts.	Mean E' Volts.
		On wire number	Scale reading in cm			
1		10th				
2		9th				
3		8th				
4		7th				

Experiment Number-6

Name of The Experiment: To compare the e.m.f of two cells with a potentiometer

Data collection:

Table 1: Data for the value of E_1/E_2

No. of observations	Cell	Null points		Total length in cm	$E_1/E_2 = l_1/l_2$	Mean E_1/E_2
		On wire number	Scale reading in cm			
1	First (E_1)					
	Second (E_2)					
2	First (E_1)					
	Second (E_2)					
3	First (E_1)					
	Second (E_2)					

Experiment Number-7

Name of The Experiment: To determine the wavelength of various spectral lines by a spectrometer using a plane diffraction grating.

Data Collection:

Table 1: Data for determination of grating constant

Wave length (λ) for Yellow line	Order number (n)	Readings of the angle of diffraction								2θ=(L~R)	θ	Gratings constant N= $\frac{sin\theta}{n\lambda}$
		Left side				Right side						
		M.S.R (degree)	V.S.D	V.C	Total R (degree)	M.S.R (degree)	V.S.D	V.C	Total L (degree)			
5893 AU	1											

Table 2: Data for determination of wavelength of spectral lines for Mercury discharge tube

Order number (n)	Color of the spectral lines	Readings of the angle of diffraction								2θ=(L~R)	θ	Wavelength, (λ) $= \frac{sin\theta}{Nn}$	Standard wavelength table from (A.U)
		Left side				Right side							
		M.S.R	V.S.D	V.C	Total R	M.S.R	V.S.D	V.C	Total L				
1st order (n=1)	Violet												4078
	Blue-Violet												4358
	Blue-Green												4916
	Green												5461
	Yellow												5770

Experiment Number-09

Name of the Experiment: To determine the value of unknown resistance and verify the laws of series and parallel resistance by Post Office Box.

Data collection:

Table 1: Reading for the Unknown resistance.

Value of P (Ω)	**Value of Q (Ω)**	**Value of R (Ω)**	**Value of S = $\frac{QxR}{P}$(Ω)**	**Mean , S(Ω)**
10	10			
10	100			
100	1000			

Table 2: Reading for the series resistance, S_s

Value of P (Ω)	**Value of Q (Ω)**	**Value of R (Ω)**	**Series resistance, $S_s=\frac{QxR}{P}$(Ω)**	**Mean S_s(Ω)**
10	10			
10	100			
100	1000			

Table 3: Reading for the parallel resistance, S

Value of P (Ω)	**Value of Q (Ω)**	**Value of R (Ω)**	**Parallel resistance $S_p=\frac{QxR}{P}$(Ω)**	**Mean, S_p(Ω)**
10	10			
10	100			
100	1000			