

CC2-PHYSICS (PRACTICAL)
MECHANICS - Lab

Instructions:

1. Students are asked to solve **one programming problem or to perform virtually one experiment** from the list of **problems/experiments** given below.
2. Duration of the examination is **4 Hrs** and submission time is **30mins** after the examination.
3. **Distribution of marks for Honours Program (CC and GE): FM-20**

Programming: Algorithm/flow chart-5, Program-6, Program output with one set of data-3,
Meaning of statement/ facilities /procedures used in the program-6.

Lab-based experiment: Working formula with validity condition-3, List of equipment to be used-2, Experimental procedures-7, Calculation of results with supplied data-6, Comment(s) on what is learnt from the experiment-2

4. Distribution of marks for Program Course: FM-20

Working formula-2, List of equipment to be used-2, Experimental procedures-10, Calculation of results with supplied data-4, Comment(s) on what is learnt from the experiment-2

5. Upload your scan copy of answer script in **PDF** file format. Name your file as Registration No.pdf (Example: 0091806031414.pdf) in Google form link: <https://forms.gle/vjKfvdRpsQtD6r1SA>
6. Upload your answer script within 30 minutes of completion of examination.

LIST OF EXPERIMENTS

1. Determine the value of the gravitational acceleration of earth by Bar Pendulum. (Readings of total time of oscillations for at least five different distances of the point of suspension from one end of the Bar Pendulum should be taken. Graph should be drawn).

Supplied Experimental Data:

Table1: Determination of distance and time period:

Serial No. of holes from one end	Distances of the hole from one end (cm)	Time for 30 oscillations (sec)
1	5	49.2
2	10	46.8
3	15	46.2
4	20	45.6
5	25	46.2
6	30	47.4

7	35	48.6
8	40	59.7
9	45	82.5
11	55	82.6
12	60	59.7
13	65	48.6
14	70	47.3
15	75	46.2
16	80	45.6
17	85	46.2
18	90	46.8
19	95	49.2

2. Determine the value of the gravitational acceleration of the earth by Kater's Pendulum. (At least three sets of readings for total time of 50 oscillation should be taken.)

Supplied Experimental Data:

Table1: Preliminary records of times of oscillations during adjustments

No of Obs	Adjustment made by shifting the cylinder	No of oscillations considered	Time of oscillations observed about the knife-edge(sec)	
			K ₁	K ₂
1	D	5	8.81	8.87
2	D	5	8.71	8.77
3	D	10	18.01	17.89
4	D	10	17.82	17.71
5	D	20	35.50	35.42

Table2: Determination of final time periods T₁ and T₂

No of Obs.	Oscillations observed about the knife-edge	Time for 50 oscillations(sec)
1	K ₁	88.05
2		87.40
3		86.99
1	K ₂	86.89
2		87.47
3		88.05

Table3: Determination of distances l₁ and l₂

No. Of Obs.	Distance of K1 from C.G. l_1 (cm)	Distance of k2 from C.G. l_2 (cm)
1	44.2	31.6
2	44.1	31.7
3	44.2	31.6

UG/CBCS/B.Sc./Hons./3rd Sem./Physics/PHYSCC6/Prac./2022

CC6-PHYSICS (PRACTICAL) THERMAL PHYSICS - Lab

Instructions:

1. Students are asked to solve **one programming problem or to perform virtually one experiment** from the list of **problems/experiments** given below.

2. Duration of the examination is **4 Hrs** and submission time is **30mins** after the examination.

3. **Distribution of marks for Honours Program (CC and GE): FM-20**

Programming: Algorithm/flow chart-5, Program-6, Program output with one set of data-3,

Meaning of statement/ facilities /procedures used in the program-6.

Lab-based experiment: Working formula with validity condition-3, List of equipment to be used-

2, Experimental procedures-7, Calculation of results with supplied data-6, Comment(s) on what is learnt from the experiment-2

4. **Distribution of marks for Program Course: FM-20**

Working formula-2, List of equipment to be used-2, Experimental procedures-10, Calculation of results with supplied data-4, Comment(s) on what is learnt from the experiment-2

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LIST OF EXPERIMENTS

1. **Determine the co-efficient of thermal conductivity of a bad conductor by Lee's and Charlton's disc method.**

Supplied Data:

Mass of the brass disc (slab B) (m)=930g

Specific heat (s) of the slab B=0.092 cal/g/°C

Thickness of the slab B (d₁)=1.23cm

Table1: Measurement of the thickness of the bad conductor (d):

L.C. of the screw guage = 0.001cm

Reading of the main scale (mm)	Reading of the circular scale
0	58
0	60
0	60
0	58

Table2: Measurement of the radius (r) of the bad conductor:

V.C. of the slide calliper's =0.01cm

Reading of the main scale (cm)	Reading of the vernier scale
11.1	7
11.2	0
11.2	1

Table3: Observation of steady state temperature:

Time in minute	Reading of the thermometers(Θ° C)	
0	31.5	31.1
15	31.7	31.3
25	31.8	31.5
35	32.1	31.7
45	32.5	32.0
50	40.0	38.0
55	93.5	41.0
60	97.5	51.5
70	99.	80.2
80	99.5	80.4
90	99.5	81.4
100	99.5	82.1

Table4: Observation of cooling curve of the slab B:

Time in second	Temperature(Θ° C)
0	92.0
30	90.0
60	88.7
90	84.4
120	81.7
150	79.8
180	77.0
210	74.8
240	73.5
270	73.1
300	72.7
330	72.4

CC11-PHYSICS (PRACTICAL)
Quantum Mechanics and Applications Lab

Instructions:

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LIST OF QUESTIONS

1. Verify the tunneling effect in tunnel diode using I-V characteristics.

Supplied Data:

Sl. No.	Voltage (Volt)	Current (mA)	Sl. No.	Voltage (Volt)	Current (mA)	Sl. No.	Voltage (Volt)	Current (mA)
1	0	0	11	55	36	21	260	26
2	5	19	12	60	36	22	300	27
3	10	25	13	80	36	23	340	30
4	15	28	14	100	34	24	380	32
5	20	30	15	120	31	25	420	35

6	25	31	16	140	29	26	450	37
7	30	33	17	160	28	27	500	40
8	40	35	18	180	27	28	550	43
9	45	36	19	200	26			
10	50	36	20	220	26			

**DSE1-PHYSICS (PRACTICAL)
ELEMENTS OF MODERN PHYSICS - Lab**

Instructions:

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3. **Distribution of marks for Honours Program (CC and GE): FM-20**

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4. **Distribution of marks for Program Course: FM-20**

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LIST OF EXPERIMENTS

1. **Determine the Planck's constant using LEDs of four different colours.**

Supplied data:

A.

Voltage-current data with red LED(wavelength= 630 nm)															
Input voltage (volt)	1.56	1.62	1.66	1.68	1.70	1.72	1.74	1.76	1.78	1.80	1.82	1.84	1.86	1.88	1.90
Current (μ A)	2	8	18	24	35	44	56	75	92	108	128	152	180	210	225

B.

Voltage-current data with yellow LED(wavelength= 578 nm)															
Input voltage (volt)	1.58	1.62	1.66	1.68	1.70	1.74	1.76	1.78	1.80	1.84	1.88	1.92	1.96	2.00	2.04
Current (μ A)	1	3	6	9	12	26	35	46	58	93	128	174	226	281	332

C.

Voltage-current data with green LED(wavelength= 546 nm)															
Input voltage (volt)	2.06	2.10	2.14	2.16	2.18	2.22	2.26	2.30	2.34	2.38	2.42	2.46	2.48	2.50	2.54
Current (μ A)	2	4	11	16	24	42	76	112	158	202	252	296	326	355	410

D.

Voltage-current data with blue LED(wavelength= 436 nm)															
Input voltage (volt)	2.28	2.32	2.36	2.40	2.42	2.44	2.48	2.52	2.56	2.60	2.64	2.68	2.70	2.74	2.78
Current (μ A)	1	3	6	12	20	26	50	81	124	162	216	266	283	342	402