UM-SJTU JOINT INSTITUTE
PHYSICS LABORATORY
DATA SHEET (EXERCISE 5)

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Group: 14   Date: 6/28

NOTICE. Please remember to show the data sheet to your instructor before leaving the laboratory. The data sheet will not be accepted if the data are recorded with pencil or modified by correction fluid/tape. If a mistake is made in recording a datum item, cancel the wrong value by drawing a fine line through it, record the correct value legibly, and ask your instructor to confirm the correction. Please remember to take a record of the precision of the instruments used.

You are required to hand in the original data with your lab report, so please keep the data sheet properly.

	$10T$ [s] $\pm$ 0.001 [s]
1	15.812
2	15.810
3	15.810
4	15.811

Table 1. Measurement of the natural frequency.
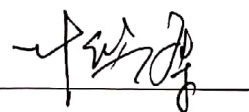
Damping Selection: 2

Amplitude [°] $\pm$ 1 [°]		Amplitude [°] $\pm$ 1 [°]		$\ln(\theta_i/\theta_{i+5})$
θ_0	116	θ_5	73	0.4631
θ_1	105	θ_6	67	0.4493
θ_2	96	θ_7	62	0.4372
θ_3	87	θ_8	56	0.4406
θ_4	79	θ_9	51	0.4376
The average value of $\ln(\theta_i/\theta_{i+5})$				0.4456

$10T =$ 15.852 [s] $\pm$ 0.001 [s]

Table 2. Measurement of the damping coefficient.

Instructor's signature:

	$10T$ [S] $\pm$ 0.001 [S]	φ [°] $\pm$ 1° [°]	θ [°] $\pm$ 1° [°]
1	16.426	23	58
2	16.044	47	107
3	15.884	71	137
4	15.860	75	140
5	15.833	81	144
6	15.822	84	144
7	15.800	87	145
8	15.790	91	145
9	15.783	92	145
10	15.778	93	145
11	15.780	94	145
12	15.762	96	144
13	15.739	103	144
14	15.684	118	130
15	15.633	130	114
16	15.577	137	97
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Table 3. θ vs. ω and φ vs. ω characteristics.

	10T [S] ± 0.001 [S]	φ [°] ± 1 [°]	θ [°] ± 1 [°]
1	16.420	25	58
2	~~16.0~~ 16.301	30	67
3	16.126	45	88
4	15.981	60	112
5	15.888	74	124
6	15.841	82	128
7	15.827	85	128
8	15.804	90	129
9	15.790	93	129
10	15.780	95	128
11	15.772	97	128
12	~~15.764~~ 15.764	99	128
13	15.751	101	126
14	15.697	114	119
15	15.612	131	98
16	15.531	142	81
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Table 4. θ vs. ω and φ vs. ω characteristics.

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