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LABORATORY WORK SHEET

Date: .....

Roll No: 22955A0305 Name: E. Girish chandra

Exp No: 02 Experiment Name: watt Governor

DAY TO DAY EVALUATION:

	Preparation	Algorithm / Performance in the Laboratory	Source Code / Calculations and Graphs	Program Execution / Results and Error Analysis	Viva voce	Total
Max. Marks	5	5	10	5	5	30
Obtained	4	4	4	4	3	19

Signature of Lab I/C

START WRITING FROM HERE:

Aim: To determine characteristics curves of sleeve position against controlling force and speed.

Specification: DC, motor 1/2 HP and 1500rpm

Apparatus: Tachometer, VSC units, dimmer, watt governor.

Utilities required: Electricity supply, Phase, 220v.AC.50Hz 5-15 Amp, socket with earth connection.

Procedure:

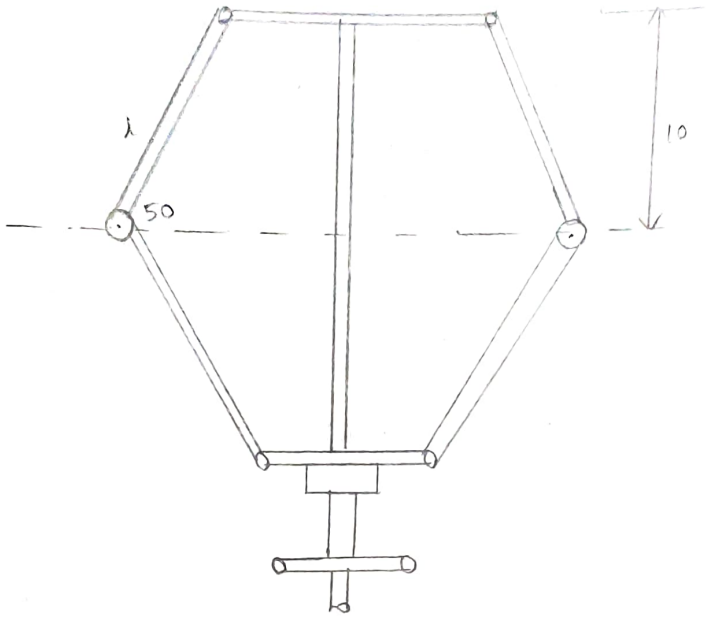
1) The control units is switched on and the speed is controlled slowly rotated.

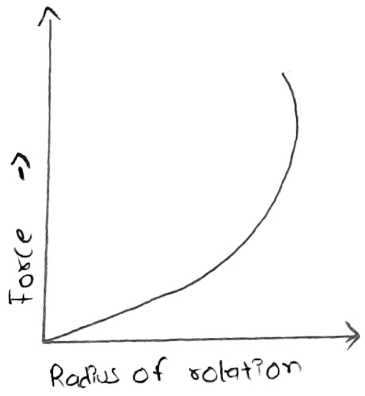
2) Increase the governor speed until the centre sleeve of the lower stop and alignes with final division on the graduated scale.

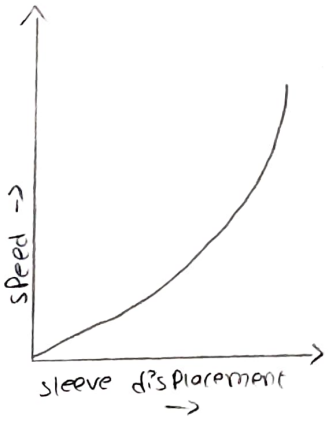
3) The sleeve position and speed are then recorded

4) Speed may be determined using hand tachometer on the spindle

5) The governor speed is increased in steps to give suitable sleeve movements, and reading represented at each stage through out the range sleeve.







S. NO	Governor speed (N) rpm	Angular velocity	sleeve Displacement	height	$\cos\alpha = h/x$	Radius of rotation (r)	force $F = \frac{w\omega^2 r}{g}$ kg
1)	605	63.35	38	91	0.689	145.67	21.45
2	715	74.87	40	90	0.681	147.24	30.28
3	860	90.05	55	82.5	0.625	153.05	48.45

6) The result may be plotted as curves of speed against sleeve position.

Specification:

The following experiment can be conducted gravity controlled governor

1) Length of each line (L) = 13cm
2) Initial height of governor (h_0) = 11cm
3) Initial radius of rotation (r_0) = 15.5cm
4) Weight of each ball assembly (w) = 150kg

Calculations:

N = speed of rotation (rpm)

x = displacement of sleeve

r = radius of rotation

i) height $h = h_0 = x/2 = 91mm$ $F = 2145 N$

ii) $\cos\alpha = h/l = 46.45^\circ$

iii) $r = 50mm + l\sin\alpha = 145.67$ mm

Precautions:

1) Do not keep the main 'on' till the trail is completed
2) Increase the speed gradually
3) Take the sleeve displacement reading with the pointer remaining steady.

Result:

Hence, the characteristics curve of the sleeve position against controlling force and speed is determined.