ANSWER SHEET

Name: _____ **Matric Number:** _____

Section / Group: _____ **Date of experiment:** _____

EXPERIMENTAL DATA

Table 1 Drag Force Measured by Direct Weighing

Drag Force (gmf)	ΔH_o **(mm)**	Δh_o **(mm)**

Table 2 Pressure Distribution around a Cylinder

θ **(Deg.)**	Δh **(mm)**
0^0	
20^0	
40^0	
60^0	
80^0	
100^0	
120^0	
140^0	
160^0	
180^0	

Note:

1. The pressure should be relatively symmetrical about the line $\theta = 0°$, so assume the values of pressure are similar for reverse direction (θ = -20° until -180 °).

2. ΔH_o is constant: _____ mm, so pressure head caused by total pressure P_o = ____ N/m^2

3. Δh_o is constant : _____ mm, so pressure head caused by static pressure p_o = ____ N/m^2

EXPERIMENTAL RESULT

Table 3 Drag Force Measured by Direct Weighing

Drag Force (gmf)	ΔH_o **(mm)**	P_o **(N/m²)**	Δh_o **(mm)**	p_o **(N/m²)**	$P_o - p_o = \frac{1}{2}\rho U^2$ **(N/m²)**

Table 4 Pressure Distribution around a Cylinder

θ **(Deg.)**	Δh **(mm)**	p **(N/m²)**	$p - p_o$ **(N/m²)**	$c_p = \frac{p - p_o}{\frac{1}{2}\rho U^2}$ **(N/m²)**	c_p **Cos** θ
0^0					
20^0					
40^0					
60^0					
80^0					
100^0					
120^0					
140^0					
160^0					
180^0					

SAMPLE CALCULATION

Show a sample of calculation and attach it with the report.

DISCUSSION

1. For the direct weighing method, plot the drag force against the dynamic pressure. Establish the slope and calculate the drag coefficient, C_D.

1. For the pressure distribution method, plot the graphs of c_p and c_p Cos θ as functions of angle θ. Determine the drag coefficient, C_D.

3. Discuss the difference of the values obtained for the drag coefficient by those two methods.

4. Discuss the differences of theoretical and experimental values of drag coefficient, C_D.

5. State the possible errors expected in this experiment, and suggestions to reduce the errors.

CONCLUSION

State the conclusions of the experiment based on the understanding from results, graphs and discussions.