Section	EQ1: Magnetic black box marking scheme	Partwise marks	Total marks
A1	Identifying correct location of the inbuilt sensor (full marks if both the coordinates correct within ± 0.2 cm, else no credit	**1.0**	**1.0 pt**
A2			**2.3 pt**
	Choice of variables for plotting	**0.1**	
	Units on these variables	**0.1**	
	For observations of x and B	***(0.8)***	
	less than 5 readings	0	
	5 readings	0.5	
	6 readings	0.6	
	7 readings	0.7	
	8 or more readings	0.8	
	Calculation of quantities to be plotted (full marks only if calculations are correct for all points, else no credit)	**0.1**	
	Graph	**(0.8)**	
	Choice of Scale (minimum 70% coverage)	0.2	
	Both axes labelled with proper units	0.2	
	At least 8 points plotted correctly	0.3	
	At least 6 points plotted correctly	0.1	
	Less than 6 points plotted	0	
	Best fit	0.1	
	Value of dipole moment (Deduct 0.1 for wrong or no unit)	**(0.4)**	
	Between 1.9 and 2.1 Am^2	0.4	
	1.8 to less than 1.9 and greater than 2.1 upto 2.2 Am^2	0.2	

Section		Partwise marks	Total marks
B1	Predicting the sections in correct order	**0.3**	**0.3 pt**
B2			**2.6 pt**
	Schematic diagram of set up (exact location and orientation)	**0.1**	
	Choice of variables for plotting	**0.3**	
	For observations of t and B	**(0.3)**	
	less than 7 readings	0	
	7 to 9 readings	0.2	
	10 or more readings	0.3	
	Calculation of quantities to be plotted (full marks only if calculations are correct for all points, else no credit)	**0.3**	
	Graph	**(1.0)**	
	Choice of Scale (minimum 70% coverage)	0.2	
	Both axes labelled with proper units	0.1	
	At least 10 points plotted correctly	0.5	
	8 or 9 points plotted correctly	0.4	
	6 or 7 points plotted correctly	0.3	
	Best fit	0.2	
	Value of terminal velocity (Deduct 0.1 for wrong or no unit)	**(0.2)**	
	Between 5.9 and 6.1 cm/s	0.2	
	5.8 to less than 5.9 cm/s OR greater than 6.1 upto 6.2 cm/s	0.1	
	Determination of length of aluminium section	**(0.4)**	
	Between 2.9 and 3.1 cm	0.4	
	2.8 to less than 2.9 cm OR greater than 3.1 upto 3.2 cm	0.2	

B3			2.2 pt
	For observations of t and B	(0.3)	
	less than 7 readings	0	
	7 to 9 readings	0.2	
	10 or more readings	0.3	
	Calculation of quantities to be plotted (full marks only if calculations are correct for all points, else no credit)	**0.3**	
	Graph	**(1.0)**	
	Choice of Scale (minimum 70% coverage)	0.2	
	Both axes labelled with proper units	0.1	
	At least 10 points plotted correctly	0.5	
	8 or 9 points plotted correctly	0.4	
	6 or 7 points plotted	0.3	
	Best fit	0.2	
	Value of terminal velocity (Deduct 0.1 for wrong or no unit)	**(0.2)**	
	Between 1.9 and 2.1 cm/s	0.2	
	1.8 to less than 1.9 cm/s OR greater than 2.1 upto 2.2 cm/s	0.1	
	Determination of length of copper section (Deduct 0.1 for wrong or no unit)	**(0.4)**	
	Between 4.9 and 5.1 cm	0.4	
	4.8 to less than 4.9 cm and greater than 5.1 upto 5.2cm	0.2	

B4 (Method I)	Length of the wooden section of pipe		**1.6 pt**
By drawing graph			
	Choice of variables	**0.1**	
	Units of variables	**0.2**	
	For observations of t and B	**(0.3)**	
	6 to 9 readings	0.2	
	10 or more readings	0.3	
	Calculations of function (determination of acceleration OR Graph plotting)	**(0.6)**	
	If all correct	0.6	
	50% correct	0.3	
	Less than 50% correct	0	
	Determination of length of wooden section (deduct 0.1 for wrong or no unit)	**(0.4)**	
B 4 (Method II) **Using the terminal velocity in Al part, time of free fall and g**	To determine $t = t_w$	**(1.3)**	
	$t = t_w$= *0.082 s to 0.086 s*	1.3	
	0.08 s t_w *<0.082 s OR*	0.6	
	0.086 s <t_w *0.088 s*		
	Calculation of L_w as per student's value of t (Deduct 0.1 for wrong or no unit)	**0.3**	
B4 (Method III)	3.9 ≤Length ≤4.1	1.6	**1.6 pt**
By subtracting the lengths			
	Length between 4.2-4.1 and 4.1-4.2 ≤4.1	**0.6**	