

WPH11 1906 paper Assessment Objectives analysis

Question	AO1	AO2a	AO2b	Comment
1	1			Units and vectors always AO1.
2	1			Knowledge of laws of motion.
3		1		Application of knowledge required to this situation.
4	1			Knowledge that horizontal distance is speed x time.
5	1			Knowledge of viscosity.
6	1			Knowledge of elastic limit and plastic deformation.
7	1			Knowledge that power is energy/sec and converting units.
8	1			Knowledge of motion graphs.
9	1			Knowledge of vector triangle.
10		1		Application of knowledge which dependant on direction of motion of lift.
11	3	1		Most marks are about knowing conservation of momentum, but 1 mark is AO2a to address why the speed of child is lower.
12			4	Command words, 'determine whether...'. Students must work out which calculation to do and must make a conclusion. They must say 83% is less than 90% and not leave it to the examiner to work out. If due to error, they get an efficiency of 95% can score MP4 for conclusion consistent with their value.
13a	2	2		MP1 & 3 are AO1, and the others are calculations so AO2a.
13bi		2		Can only be done with information in question.
13bii		2		Can only be done with information in question
14ai	1	1		Use of equation AO1 and second mark AO2a.
14aii		4		All marks dependant on content of question.
14b		2		Can only be done with information in question
15a	1	4		5-mark calculation so 1X AO1 and 4 x AO2a.
15b	1	1		Knowing the arm is not uniform is knowledge, but the effect in this situation is application.
16a	3			Core experiment factual recall, all AO1.
16b	2	2		Two formulas used, area and YM formula, so 2 x AO1 and 2 x AO2a.
*16c	6			Starred question so this is the linkage question, but it is based on factual knowledge of what determines extension.

17ai	1	4		5-mark calculation, so 1X AO1 and 4 x AO2a.
17aii		2		Answer is based on the context of the question.
17b			6	There is a manufacturer's recommendation and the question asks students to comment on it. Not the same as Q12 which required a comparison to a given value. Here reference to two properties required to score full marks.
18ai	4			Knowledge about terminal velocity and conditions for it to occur. Drawing free body force diagrams is AO1.
18aii	1	3		4-mark calculation so 1X AO1 and 3 x AO2a.
18bi	1	1		Vertical distance increasing is AO1 but keeping the horizontal distance constant requires using the distance in the diagram, so this is AO2a.
18bii	1	2		3-mark calculation, so 1X AO1 and 2 x AO2a.
Totals	35	35	10	