Mark Scheme (Results)

January 2023

Pearson Edexcel International GCSE
In Physics (4PH1)
Paper 1PR

Question number	Answer	Notes	Marks
3 (a) (i)	8.2 (m/s) ;		1
(ii)	any TWO from: MP1. reference to weight and drag; MP2. weight greater than drag; MP3. resultant force causes acceleration; MP4. drag increases with speed; PLUS weight = drag at terminal velocity/eq;	ignore reference to upthrust accept water friction or water resistance for "drag" accept 'gravitational force' for 'weight' "F=ma" is insufficient by itself	3
(b) (i)	pressure difference = height × density × g ;	accept depth for height accept accepted symbols e.g. p, h, d (for height), d or ρ (for density), accept any correct rearrangement reject 'gravity' for 'g'	1
(ii)	substitution; evaluation; correct answer: 250 000 (Pa) e.g. pressure difference = height × density × g pressure difference = 25 × 1000 × 10 pressure difference = 250 000 (Pa)	accept use of 9.8(1) for 'g' giving 245 000 (Pa) POT error gives −1 except if no evidence of use of 'g'	2
(iii)	addition of 1.0×10^5 to candidate's answer to (ii); correct answer: 3.5×10^5 (Pa)	accept answer not given in standard form	1
(iv)	substitution into given equation; rearrangement; correct evaluation; correct answer: 0.13(14) (m^3) e.g. $p_1 \times V_1 = p_2 \times V_2$ $1.0 \times 10^5 \times 0.46 = 3.5 \times 10^5 \times V_2$ $V_2 = (1.0 \times 10^5 \times 0.46) \div (3.5 \times 10^5)$ $V_2 = 0.1314$ (m^3)	subs and rearrange can be in either order; condone use of 2.5×10^5 Pa giving V = 0.18… (m^3) for 2 marks condone use of 2.45×10^5 Pa giving V = 0.188… (m3) for 2 marks	3

Total for Question 3 = 11 marks