Mark Scheme (Results)

Summer 2021

Pearson Edexcel International GCSE

In Physics (4PH1) Paper 1P and Science (Double Award) (4SD0) Paper 1P

Question number	Answer	Notes	Marks
9 (a)	use of $v^2 = u^2 + 2as$; substitution; rearrangement; evaluation; e.g. $v^2 = u^2 + 2as$ $v^2 = (0) + 2 \times 10 \times 2.2$ $v = \sqrt{44}$ (v =) 6.6 (m/s)	seen anywhere in working allow use of g=9.8, 9.81 allow alternative method using $mgh = {}^{1}/_{2}mv^2$ final answer of 44 (m/s) is 2 marks only allow 6.63...(m/s), 6.56...(m/s) 6.5 scores 3 marks only	4
(b) (i)	vertical arrow drawn upwards;	ignore labels reject if more than one arrow drawn unless resultant force is clearly labelled	1
(ii)	substitution into F = ma; rearrangement; evaluation; e.g. 18 000 = 4100 × a a = 18 000 / 4100 (a =) 4.4 (m/s²)	 -1 for POT error allow 4.39...(m/s²)	3

Total for Question 9 = 8 marks

Question number			Answer	Notes	Marks
10	(a)		use of $p = h \times$ density $\times g$; conversion of 57 cm into 0.57 m; evaluation; e.g. pressure difference = 57 × 820 × 10 pressure difference = 0.57 × 820 × 10 (pressure difference =) 4700 (Pa)	allow mark if formula on its own is seen in working allow use of g = 9.8, 9.81 470 000, 467 000, 467 400, 458 052, 458 519.4 etc. score 2 marks allow 4670, 4674, 4580.52, 4585.194 etc.	3
	(b)	(i)	substitution into W = m × g; evaluation; correct unit; e.g. W = 24 × 10 (W =) 240 newtons / N	no mark for formula on its own allow use of g = 9.8, 9.81 -1 for POT error e.g. incorrectly changing kg to g mark independently allow 235.2, 235.44	3
		(ii)	substitution into p = F/A; evaluation; e.g. p = 240 / 1.2 (p =) 200 (Pa)	no mark for formula on its own allow ecf from (i)	2
		(iii)	substitution into p = F/A; rearrangement; evaluation; e.g. 200 = F / 4.8 F = 200 × 4.8 (F =) 960 (N)	no mark for formula on its own allow ecf from (ii)	3
	(c)		GPE of piston X = decrease; GPE of piston Y = increase; chemical energy of piston Y = no change; kinetic energy of piston Y = no change;	allow marks if the meaning is clear e.g. allow +, ↑ for increase etc.	4

Total for Question 10 = 15 marks