Question Number	Answer	Mark
13(a)	• Use of $v^2 = u^2 + 2as$ **(1)** • Vertical component, $u_V = u \sin 35°$ **(1)** • Speed of ball = 17.3 (m s^{-1}) **(1)** Example of calculation 0 = u_v^2 – 2 × 9.81 m s^{-2} × 5.0 m u_v^2 = 98.1, u_v = √98.1 = 9.9 m s^{-1} u = 9.9 / sin 35° = 17.3 m s^{-1}	**3**
13(b)	• Use of $u_H = u \cos \theta$ **(1)** • Use of $t = s/u_H$ **(1)** • Use of $s = ut + \frac{1}{2}at^2$ with $u_V = u \sin \theta$ and $a = -g$ **(1)** • Height = 3.2 (m) **(1)** • Comparison of result consistent with calculation of height at 22 m. **(1)** Example of calculation Horizontal speed = 17.0 cos 35° = 13.9 m s^{-1} Time to travel 22 m = 22 ÷ 13.9 = 1.58 s Initial vertical speed = 17.0 sin 35° = 9.8 m s^{-1} Height gained in 1.58 s = 9.8× 1.58 – 0.5 × 9.81 ×1.58^2 = 3.16 m	**5**
	Total for question 13	**8**