Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : 2_Motion and Forces

Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Mark Schemes

Q1.

	Answer	**Acceptable answers**	**Mark**
(i)	An explanation linking two of the following: • force is smaller/less (1) • momentum changes more slowly (1) • lower deceleration (1) • use of the formula (1)	pressure is smaller/less slower deceleration force is proportional to rate of change of momentum/F= (mv – mu)/t	**(2)**
(ii)	Any two from: (for loaded aircraft) • has more mass (1) • has more momentum (1) • has more k.e. (1) • higher velocity • brakes need to do more work (1)	accept reverse argument for empty aircraft heavier/more passengers/more cargo higher speed/moving faster	**(2)** **expert**

Q2.

Question Number	Answer	Additional guidance	Mark
(i)	substitution (1) $\frac{2x2.5}{0.74^2}$ evaluation (1) 9.1(3) (m/s^2)	$\frac{5}{0.5476}$ award full marks for the correct answer with no working	(2) AO 2 1

Question Number	Answer	Additional guidance	Mark
(ii)	(0.74 + 0.69 + 0.81) ÷ 3 (1) 0.7(5) (1)	accept 0.7 or 0.75 award full marks for the correct answer with no working 0.746 or 0.747 or 0.750 scores 1 mark	(2) AO 3 2a AO 3 2b

Q3.

	Answer	Acceptable answers	Mark
(i)	momentum = 0.03 × 170 (1)	Accept 5.1 seen	(1)
(ii)	momentum before = momentum after (1) 5.1 = 0.83 × v (1) v = 6.1 (m/s) (1)	allow 5.0 = 0.80 x v for 1 mark max 5.0 = 0.83 × v v = 6.0 (m/s) allow ecf from (a)(i) give full marks for correct answer, no working	(3)
(iii)	Statement to include any two from • kinetic energy is not conserved (1) • (lost ke) appears as heat/sound (1) • momentum is conserved (1)	ke not conserved / some ke lost no momentum lost	(2)

Q4.

	Answer	Acceptable answers	Mark
(i)	substitution (1) 67 × 31 evaluation (1) 2077 (kg m/s)	2080, 2100 working backwards using 2000 (v=) 29.85, 30 (m=) 64.52, 65 67 X 31=2000 scores only one mark	**(2)**
(ii)	substitution (1) 2000 ÷ 2.3 evaluation (1) 870 (N)	answer to (b)(i)) ÷ 2.3 900, 869.6, 869.5 903	**(2)**
(iii)	an explanation linking two of the following • Force on Andrew is quite small (1) • Because impact time is long (1) • The acceleration/deceleration is quite small (1) • Because impact distance is far (1)	force is reduced/ less /not as strong slows down/changes momentum gradually acceleration = 1.35 'g' or 13.5 m/s^2 slows down (rate of) change of momentum scores 2 marks	**(2)**