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

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Mark Schemes

Q1.

		Indicative Content	Mark
QWC	*	an explanation linking some of the following points: compared to a car with just the driver, a fully loaded car will • have a greater mass / be heavier • greater kinetic energy / momentum • experience the same braking force (when brakes are applied) • require a greater braking force (than available) to stop (in the same distance) • have a smaller acceleration / deceleration • take a longer time to come to rest (from given speed) • travel greater distance in this time • needs to do more work with same amount of force • use of relevant equations such as F = ma, work done = F × d • consequence of driver distractions	**(6)**
Level	**0**	No rewardable content	
1	**1 - 2**	• a limited explanation using one idea	

		from the indicative content eg fully loaded car is heavier. • in answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy
2	**3 - 4**	• a simple explanation which links ideas from the indicative content eg it is heavier and so it takes a longer distance to stop • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy
3	**5 - 6**	• a detailed explanation which links several ideas from the indicative content e.g. It has more momentum and so it will take a longer time to stop. This means that it will travel a further distance. The answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors

Q2.

Question Number	Answer	Acceptable answers	Mark
(a)	**D** driving for a long time without taking a break		**(1)**

Question Number	Answer	Acceptable answers	Mark
(b)(i)	substitution 1200 x 8(.0) (1) evaluation 9600 (J) OR 9.6×10^3 (J) (1)	Give full marks for correct answer with no working. 9.6 x any other power of 10 = 1 mark	**(2)**

Question Number	Answer	Acceptable answers	Mark
(b)(ii)	substitution $0.5 \times 1400 \times 25^2$ (1) evaluation of v squared 0.5 x 1400 x 625 (1) evaluation 4.4×10^5 (J) (1) OR 440 000	Give full marks for correct answer with no working. accept 625 seen anywhere for this mark e.g. 875 000 gets 1 mark (forgot ½) 437 500 (J) 4.4 x any other power of 10 = 2 marks	**(3)**

Q3.

Question Number	Answer	Mark
(i)	**B** QR (horizontal line) **A** PQ is incorrect it shows constant acceleration **C** RS is incorrect it shows constant acceleration **D** ST is incorrect it shows constant deceleration	**(1)** **AO3**

Question Number	Answer	Mark
(ii)	**A** PQ (steeper slope shows greater acceleration) **B** QR is incorrect it shows zero acceleration **C** RS is incorrect as slope is less steep than for PQ **D** ST is incorrect as the slope is less steep than for PQ and shows deceleration	**(1)** **AO3**

Question Number	Answer	Additional guidance	Mark
(iii)	substitution (1) (a=) $\frac{15(-0)}{10}$ evaluation (1) 1.5 (m/s^2)	 15 seen allow 10 divided by any number between 6 and 7 for this mark award full marks for the correct answer with no working	**(2)** **AO3**

Question Number	Answer	Additional guidance	Mark
(iv)	indication that distance travelled = area under graph (1) substitution (1) (distance travelled =) 10 x 15 evaluation (1) 150 (m)	may be seen on graph accept distance = speed x time ignore speed = $\frac{\text{distance}}{\text{time}}$ award full marks for the correct answer with no working award 2 marks for 10 x 15 seen anywhere if no other marks awarded, 1 mark for use of 15 (m/s) or 10 (s)	(3) AO3