Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 9_Forces and their effect

Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
	An answer that combines the following points of understanding to provide a logical description: named force (acting at a distance) (1) situation (1)	 e.g. magnetic force between two (magnetic) poles	(2)

Q2.

Question number	Answer	Additional guidance	Mark
	(upward) force increases with speed (1) relationship is non-linear (1)	allow reverse argument changing rate / increases exponentially/ initially no upward force (until 1000 turns per minute)	**(2)**

Q3.

Question number	Answer	Additional guidance	Mark
	(upward) force increases with speed (1) relationship is non-linear (1)	allow reverse argument changing rate / increases exponentially/ initially no upward force (until 1000 turns per minute)	**(2)**

Q4.

Question number	Indicative content	Mark
*	Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme. The indicative content below is not prescriptive and candidates are not required to include all the material which is indicated as relevant. Additional content included in the response must be scientific and relevant. • benefit → easier with a lever (AO2) • crowbar easier to lift/move (AO2) • (applied force) is less (AO1) • distance to pivot from (applied) force is (considerably) bigger than distance of load/weight to pivot (AO2) • labelled distances in figure xx (AO2) • force (applied) x x = load x y i.e. principle of moments used (AO1) • relevant mention of clockwise and anticlockwise moments (AO1) • specific application to crowbar (AO2)	**(6)** **AO1, AO2**

Level	Mark	Descriptor
	0	No awardable content
Level 1	1-2	• Demonstrates elements of physics understanding, some of which is inaccurate. Understanding of scientific ideas lacks detail. (AO1) • The explanation attempts to link and apply knowledge and understanding of scientific ideas, flawed or simplistic connections made between elements in the context of the question. (AO2)
Level 2	3-4	• Demonstrates physics understanding, which is mostly relevant but may include some inaccuracies. Understanding of scientific ideas is not fully detailed and/or developed. (AO1) • The explanation is mostly supported through linkage and application of knowledge and understanding of scientific ideas, some logical connections made between elements in the context of the question. (AO2)
Level 3	5-6	• Demonstrates accurate and relevant physics understanding throughout. Understanding of the scientific ideas is detailed and fully developed. (AO1) • The explanation is supported throughout by linkage and application of knowledge and understanding of scientific ideas, logical connections made between elements in the context of the question. (AO2)

Level	Mark	Additional Guidance	General additional guidance – the decision within levels e.g. - At each level, as well as content, the scientific coherency of what is stated will help place the answer at the top, or the bottom, of that level.
	0	No rewardable material.	
Level 1	1–2	Additional guidance elements of physics understanding with some linking to scientific ideas/practical application two isolated statements	Possible candidate responses easier to lift big distance to pivot you can apply your weight onto the crowbar
Level 2	3–4	Additional guidance mostly relevant physics understanding with application of scientific ideas makes some link between force and distance OR some reference to moments	Possible candidate responses less force needed as there is a bigger distance to pivot OR because of moments you need less force
Level 3	5–6	Additional guidance accurate and relevant physics understanding with detailed application of scientific ideas Some reference to crowbar. makes links between force and distance AND refers to moments	Possible candidate responses If moment of weight = moment of crowbar, then the further away you are, you need less force to move the weight the bigger the distance to the pivot, the less force you need to provide the same moment

Q5.

Question Number	Answer	Additional guidance	Mark
(i)	recall of moment = force x distance (1) (moment of force from person =) 600 x 0.5 **and** (moment of weight of rock =) 1800 x 0.2 (1) **moment** of force from person is less than **moment** of weight of rock. (1)	may be implied in a calculation 300 (Nm) 360 (Nm) independent mark accept reverse argument	**(3)**

Question Number	Answer	Additional guidance	Mark
(ii)	An explanation that links increase distance between person and pivot/ reduce distance between rock and pivot / increase force from person (1) increase the moment of the force from the person / decrease the moment of the weight of the rock (1)	 use longer lever / hold lever nearer the end / move pivot nearer to rock / get someone to help to push value of new distance and calculation of new moment	**(2)**