Question number	Answer	Notes	Marks
5 (a) (i)	moment = force x (perpendicular) distance (from the pivot);	ACCEPT Moment = F x d or correct rearrangement REJECT moment = force x distance moved REJECT 'm' or 'M' for 'moment'	1
(ii)	Substitution in correct equation; Calculation; Consistent Units; e.g. If calculated in metres 7 x 0.04; 0.28 or 0.3; Nm; e.g. If calculated in centimetres 7 x 4; 28 or 30; Ncm;	Correct final value = 2 irrespective of working ACCEPT newton metres, N.m REJECT 'nm', 'NM', J, N/m ACCEPT newton centimetres, N.cm REJECT 'ncm', 'NCM', J, N/cm	3
(b)	Length/distance to pivot of lever R less than lever A / closer to pivot; ORA So more (force) needed to cause the same moment; ORA (i.e. if force was the same, moment would be less)	ACCEPT Less than 0.04 m IGNORE 'less leverage' ACCEPT appropriate use of equation / Force = 14 N ACCEPT Overcoming friction for one mark IGNORE references to principle of moments (stated or implied) REJECT 'momentum' for 'moment'	2

Total 6 Marks

Question number	Answer	Notes	Marks
6 (b) (ii)	120 (m)	ACCEPT 120 ± 5 (m);	1
(b) (iii)	Yes (no mark) Because 122 m is within tolerance / error zone / uncertainty of altimeter reading / (altimeter is) correct to nearest 5m / reading may not have been at the very top;	Accept NO if back up by incorrect value for (b) (ii) REJECT inconsistent answers (e.g. 'no' followed by reasoning that supports 'yes') IGNORE 'only 2m away', 'very close to', 'nearly the same', 'rough estimate' – key marking point is uncertainty, not closeness	1

Total 12 Marks

Question number	Answer	Notes	Marks
15 (a) (i)	Terminal (velocity);		1

(ii)	upward force = downward force / forces balanced / no resultant force / resultant force = 0;
	reference to F = ma / reference to (Newton's) 1st or 2nd Law;
	no acceleration / acceleration = 0;
		IGNORE descriptions of *reaching* terminal velocity	3

(iii)	faster speed / higher velocity / fell more quickly; Any one of – smaller (surface) area; Initially less resistive force / air resistance / drag; different time (to reach terminal velocity); less deceleration (before reaching terminal velocity);	 NOT ACCEPT '<u>no</u> air resistance' IGNORE upthrust	2
(b)	(Stopping distance) increased / further / longer; Suitable reason, e.g. Since less braking force / air resistance / drag / takes longer to decelerate / reduced deceleration / smaller resultant force;	IGNORE references to 'longer time' must be comparative, e.g. less / slower / longer	2

Total 8 Marks