Question number	Answer	Notes	Marks
3 (a)	any five from: MP1. idea that students stand a **large** distance apart; MP2. measure distance with tape measure / trundle wheel; MP3. start timing when see blocks hit together; MP4. stop timing when hear sound from blocks being hit together; MP5. measure time with stopclock / stop watch; MP6. take repeats and determine mean; MP7. use of speed = distance / time; MP8. use of a distance-time graph to find speed from gradient;	allow alternative approach using echoes from a wall allow stated distance if 50m or greater allow a large distance from a wall (at least 25m) ignore ruler allow idea of setting of a rhythm if wall method used allow dividing total time by number of hits if wall method used ignore timer allow take repeats to identify anomalies allow use of speed = 2×distance / time if wall method used	5
(b) (i)	mean calculated correctly; expressed to 2 decimal places; e.g. (mean time =) 0.866… (s) (mean time =) 0.87 (s)	 DOP 0.86 scores 1 mark only	2
(ii)	idea of ignoring or repeating the anomaly;	ignore ‘repeat the experiment’	1
(iii)	300m distance chosen; idea that reaction time is likely to be less significant at greater distances;	allow greatest distance allow 200m only if justified with a speed of sound argument allow idea that it gives a speed closest to the true value allow idea that readings from trials show least variation	2

Total for Question 3 = 10 marks