Mark Scheme

Q1.

Question Number	Answer	Acceptable answers	Mark
(b)(ii)	divide any suitable pair of values eg 60÷10 or 120÷20 (1) evaluation (1) 6 (m/s)	no credit for speed = distance÷time as on formulae page allow both marks for correct answer with no working shown. answers in range 5.8 to 6.2 (m/s) allow POT error for 1 mark but not if clear they have multiplied 60 and 10 no marks for a correct evaluation of a wrong pair of numbers eg 140/20 =7 scores zero	**2**

Q2.

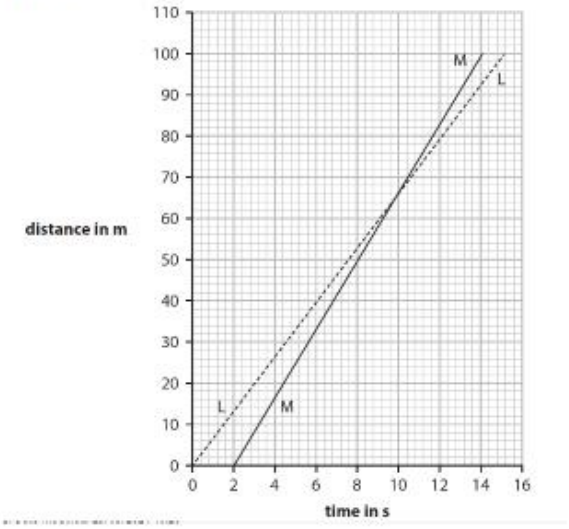
Question number	Answer	Notes	Marks
(a) (i)	(average) speed = distance (moved) / time (taken);	allow rearrangements and use of standard symbols e.g. v = s/t condone s = d/t	1
(ii)	use of one correct pair of readings from the graph; substitution of a correct distance and time into formula; evaluation; matching unit; e.g. total distance = 700 (km), total time = 60 (mins) (speed =) 400 / 30 (speed =) 13 km/minute	seen anywhere in working must be consistent with units used in substitution 400 000 / 1800 222 m/s 0.222 km/s gains 4 marks 800 km/hour gains 4 marks 12 km/minute gains 2 marks only 194 m/s gains 2 marks only	4

Q3.

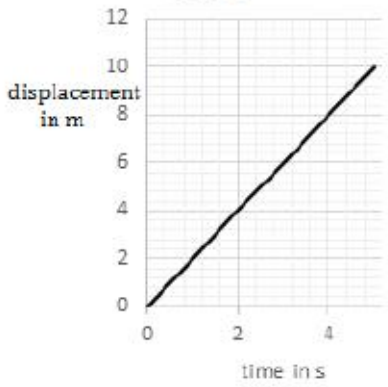
Question Number	Answer	Acceptable answers	Mark
	{steady/constant} speed (at first) (1) (then) slows down (1)	accept velocity for speed ignore as time increases distance travelled increases (then) slower/less speed/decelerates/negative acceleration	**(2)**

Q4.

Question number	**Answer**	**Additional guidance**	**Mark**
(i)	66 (m)	allow values between 64 and 68 inclusive allow values between 32 and 36 as the distance L has to run after M overtakes in this context	**1** **AO3.2**

Question number	Answer	Additional guidance	Mark
(ii)	select (1) $v = \frac{x}{t}$	allow any identifiable distance from graph divided by any identifiable time from graph e.g. $\frac{100}{15.2}$  	**2** **AO2.1**
	evaluation (1) 6.6 (m/s)	allow values that round to between 6.5 (m/s) and 6.7 (m/s) for example 6.666 (m/s) or 6.579 (m/s) award full marks for correct answer without working	

Q5.

Question number	Answer	Mark
	[x] **C**  A is not correct because it shows a constant velocity of 0.4 m/s B and D are not correct because they show constant acceleration.	**(1)** **AO3**

Q6.

Question number	Answer	Notes	Marks
(a) (i)	B, D, F;	all required for the mark reject if additional sections listed	1
(ii)	use of speed = distance / time;	seen anywhere allow symbols allow attempt to find gradient of line	4
	correctly read time or distance from graph; conversion from minutes to seconds or km to m; correct evaluation;		
	e.g. v = s / t distance = 2.6 km or time = 2 minutes distance = 2600 m or time = 120 s (v =) 22 (m/s)	allow s = d / t allow 21.7, 21.6... (m/s) 0.0216..., 1300 = 3 marks 1.3 = 2 marks	
(iii)	idea that speed of bus is greater in section A; (because) line is steeper / gradient is larger / eq;		2