M1. (a) 53 (m)

(b) (i) Similar shape curve drawn above existing line going through (0, 0)

allow 1 mark for any upward smooth curve or straight upward line above existing line going through (0, 0)

(ii) rain on road

car brakes in bad condition

(c) (i) all three lines correctly labelled

allow 1 mark for one correctly labelled

top line – C

accept 1.2

middle line – B

accept 0.9

bottom line – A

accept 0.7

(ii) any two from:

• (table has) both variables are together

accept tired and music as named variables

• both (variables) could/ would affect the reaction time

• cannot tell original contribution

accept cannot tell which variable is affecting the drive (the most)

• need to measure one (variable) on its own

accept need to test each separately

• need to control one of the variables

[9]
M2. (a)  
(i) same size  
(ii) K 

(b) velocity 

(c) C  
greatest mass or because it’s heavier  
accept biggest load  
accept heaviest or more weight  
do not accept fuller  
do not accept more items  
do not accept it’s loaded  
do not accept loaded most  
ignore references to time as neutral
M3. • gravity
• accelerates
• friction
• falls at a steady speed
  each for 1 mark

M4. (a) (i) friction
  accept any way of indicating the correct answer
  1

  (ii) gravity
  accept any way of indicating the correct answer
  1

(b) (i) accelerates or speed / velocity increases
  accept faster and faster (1 mark)
  do not accept faster pace / falls faster
  or suggestions of a greater but constant speed
  1
downwards / falls
  accept towards the Earth / ground
  this may score in part (b)(ii) if it does not score here and
  there is no contradiction between the two parts
  1

  (ii) constant speed / velocity or terminal velocity / speed or zero acceleration
  stays in the same place negates credit
  1
M5. (a) B

more aerodynamic or most streamlined shape or
smaller (surface) area
accept less air/wind resistance or less drag or less friction
clothing traps less air or rolled up into ball or arms, legs
drawn in
accept converse

(b) (i) gravity

(ii) air resistance

(iii) go up

(iv) stays the same

(c) bigger the area, the bigger force Y
accept the converse

or bigger the area more drag
accept when the parachute opens then force Y bigger

or bigger the area more air resistance
need the relation of area to force