Name of the Student:_____
Max. Marks : 25 Marks **Time : 25 Minutes**

Mark Schemes

Q1.

(a) (i) D

1

(ii) friction

1

(iii) any **two** from:

- the speed / velocity
- the radius of the bend

the radius is insufficient

accept curvature of the road

size of the bend is insufficient

accept distance of car from centre (of bend)

- the mass (of the car).

accept weight for mass

2

(b) the car has a wide base

accept any description of a wide base e.g. the wheels are far apart

accept wide wheel base

*do **not** accept long wheel base*

a large surface area is insufficient

wide tyre(s) is insufficient

1

the car has a low centre of mass / gravity

accept any description of low centre of mass e.g. mass is close to the ground

a down force is insufficient

1

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Q2.

(a) increases

1

increases

1

(b) 23 (m)

*accept 43 circled for **1** mark*

*accept 9 + 14 for **1** mark*

2

(c) (i) all points correctly plotted

all to ± ½ small square
*one error = **1** mark*
*two or more errors = **0** marks*

2

line of best fit

1

(ii) correct value from their graph (± ½ small square)

1

(d) (i) 70

*½ × 35 × 4 gains **2** marks*
*attempt to estimate area under the graph for **1** mark*

3

(ii) line from (0.6,35)

1

sloping downwards with a less steep line than the first line

1

cutting time axis at time > 4.6 s

accept cutting x-axis at 6

1

(e) (i) 42 000

*1200 × 35 gains **1** mark*

2

kgm / s

Ns

1

(ii) 10 500 (N)

*42 000 / 4 gains **1** mark*
alternatively:
a = 35 / 4 = 8.75 m / s^2
F = 1200 × 8.75

2

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