Name of the Student:_____
Max. Marks : 16 Marks **Time : 16 Minutes**

Mark Schemes

Q1.

(a) **Level 2:** Relevant points (reasons / causes) are identified, given in detail and logically linked to form a clear account.

3–4

Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.

1–2

No relevant content

0

Indicative content

Factors
- poor condition of tyres
- poor road surface
- wet or icy road
- poor/worn brakes

Explanation
- because of decreased friction

Factors
- increased mass of car/passengers

Explanation
- increases kinetic energy of car
- more work needs to be done to stop car
- increases momentum of the car

Factor
- road slopes downhill

Explanation
- (a component of) gravity opposes the braking force
- resultant (braking) force is reduced

allow answers in terms of reducing braking distance throughout

A single factor with no related explanation is insufficient to score a mark

(b) resultant force = mass × acceleration

1

(c) $7200 = 1600 \times a$

ignore negatives throughout

1

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$a = \frac{7200}{}$

1

$a = 4.5\ (m/s^2)$

1

(d) 15 (m) 38 (m)

two correct values identified

1

= 53 (m)

allow the correct addition of a misread braking distance and /or a misread thinking distance taken from the graph

1

(e) $p = \frac{F}{A}$

1

(f) $120\,000 = \frac{60}{A}$

1

$A = \frac{60}{120\,000}$

1

$A = 0.0005$

1

$A = 5\ (.0) \times 10^{-4}$

allow an answer given to 2 sig figs from an incorrect calculation using the given data

1

m^2

1

[16]

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