Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Mark Schemes

Q1.

(a) hydraulic

1

(b) 9

*allow **1** mark for a correct substitution, ie* $\frac{1800}{200}$ *provided no subsequent step*

2

(c) an environmental

1

[4]

Q2.

(a) time

correct order only

1

force

1

(b) The car tyres being badly worn

1

(c) (i) braking distance increases with speed

accept positive correlation
*do **not** accept stopping distance for braking distance*

1

relevant further details, eg

- but not in direct proportion
- and increases more rapidly after 15 m/s

accept any speed between 10 and 20
accept numerical example

- double the speed, braking distance increases × 4

1

(ii) line drawn above existing line starting at the origin

as speed increases braking distance must increase
each speed must have a single braking distance

1

(d) (i) reaction time / reaction (of driver) does not depend on speed (of car)

1

(ii) (on the reduced speed limit roads) over the same period of time

accept a specific time, eg 1 year

1

monitor number of accidents before and after (speed limit reduced)

*allow **1** mark only for record number of vehicles / cars using the (20 mph) roads **or** collect data on accidents on the (20 mph) roads*

to score both marks the answer must refer to the roads with the reduced speed limit

1

[9]

Q3.

(a) centre of X drawn at centre of pendulum bob

judged by eye

accept dot drawn at centre of circle

1

(b) (i) 2

*allow **1** mark for correct substitution, ie* $\frac{1}{0.5}$ *provided no subsequent step shown*

2

(ii) 30

or

60 ÷ their (b)(i) correctly calculated

allow 1 mark for $\frac{60}{2}$

or $\frac{60}{\text{their (b)(i)}}$

or *0.5 × 60*

provided no subsequent step shown

2

(c) 51.2

*allow **1** mark for correct substitution, ie 64 × 0.8 provided no subsequent step shown*

2

(d) it increases (the moment)

must be comparative

*accept **1** mark for calculation of the moment = 64 (Nm)*

1

[8]