Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Mark Schemes

Q1.

(a) distance travelled under the braking force

accept braking (distance)

1

(b) (directly) proportional

accept a correct description using figures

or

increase in the same ratio

eg if speed doubles then
thinking distance doubles
*accept for **1** mark positive correlation*
*accept for **1** mark as speed*
increases so does thinking distance
accept as one increases the other increases
accept as thinking distance increases speed increases

2

(c) (i) control variable

1

(ii) experiment done, student listens to music / ipod (etc)

1

experiment (repeated), student not listening to music

for both marks to be awarded there must be a comparison

1

(d) increase it

accept an answer which implies reactions are slower
*do **not** accept answers in terms of thinking distance only*

1

(e) **Y**

1

[8]

Q2.

(a) The driver has been drinking alcohol.

reason only scores if this box is ticked

1

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driver's reaction time increases

accept slower reactions

accept slower reaction time

or

thinking distance / stopping distance increases

do not accept braking distance increases

or

driver less alert

accept driver may fall asleep / be tired

1

(b) they are all variables that could affect outcome / results

accept specific effect of changing one of the variables

accept to make the test valid

ignore reliable

1

so data / barriers can be compared

accept to see which is / works best / safest

*do **not** accept fair test on its own*

1

(c) ticks in both the top and middle boxes

1

[5]

Q3.

(i) the thicker the tile, the greater the(fall) height

accept the higher (the fall) the thicker the tile
accept there is a positive correlation
*do **not** accept they are proportional*

1

(ii) 60 (mm)

accept any number or range between 60 and 85 inclusive
if units are given must match range

1

(minimum thickness) needed to reduce risk of injury

reason must match thickness choice
*do **not** accept to keep child safe*

accept an answer in terms of – the thicker the tile, the less chance there is of a serious injury if the answer given is greater than 60

accept answers in terms of use of graph e.g. the graph shows that for a 2m fall a thickness of 60 mm is needed

minimum level answer' the graph shows that's what's needed' accept only if 60 is the answer

1

[3]

Q4.

(a) (i) 50 (N)

ignore any units

1

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(ii) resultant force

1

(iii) 4000

*accept their (a)(i) × 80 correctly calculated for **2** marks*
*allow **1** mark for correct substitution i.e. 50 × 80 or their (a)(i) × 80*
ignore any units

2

(b) (i) joule

1

(ii) heat

1

[6]

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