

Name of the Student: _____

Max. Marks : 17 Marks

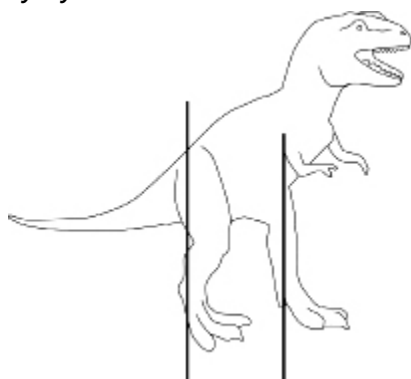
Time : 17 Minutes

Mark Schemes

Q1.

- (a) (i) centre of **X** above the feet and in the body

*a vertical line from their **X** falls between two lines in diagram - judged by eye*



1

- (ii) where the mass seems to be concentrated

accept it's above the base (area)

accept because otherwise it would topple

accept line of action (of weight) passes through the base

*do **not** accept where the mass is concentrated*

1

- (b) any **two** from:

- make (the area of) feet / base bigger
- make feet wider apart
- makes legs shorter / heavier
- make head smaller / lighter
- make tail touch the ground / make the tail longer
accept 'make centre of mass / gravity lower'

2

[4]

Q2.

- (a) The driver has been drinking alcohol.

reason only scores if this box is ticked

1

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.

- (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]