



9I Energy and electricity...mark scheme

Assessment for learning...year 9 (level 3-6)

Question 1:

- (a) (i) While the book was falling, its potential energy was being transformed into kinetic energy. 1
ie a \checkmark in the second box down
if more than one box is ticked award no mark
- (ii) 7.5 **or** just under 7.5 1
- (b) any **one** from 1
- transferred to the surroundings
or spread out into the surroundings
*accept 'goes into the floor **or** atmosphere'*
 - turned to thermal energy
accept 'sound'
*do **not** accept 'light'*
*do **not** accept 'it has changed'*

[3]

Question 2:

- (a) (i) C \checkmark 1
if more than one box is ticked, award no mark
- (ii) B \checkmark 1
if more than one box is ticked, award no mark
- (iii) D \checkmark 1
if more than one box is ticked, award no mark

- (b) any **one** from 1
- the brakes **or** wheels **or** tyres
 - the surroundings
 - the air
 - the ground
- accept 'lost as heat' or 'soles of shoes'*
do not accept 'the bike' or 'the cyclist'
- [4]**

Question 3:

- (a) (i) the spark 1
accept 'the sparkler'
- (ii) the glass of water 1
accept 'the glass' or 'the water'
- (iii) the poker 1
- (b) any **one** from 1
- energy transferred to beaker **or** air **or** surroundings
accept 'thermal energy is lost to the beaker or air or room' or 'it has been dissipated'
 - beaker **or** air has been warmed up
 - surroundings have warmed up
accept 'used or lost during evaporation' or 'used to form steam'
accept 'lost as heat' or 'lost as sound'
do not accept 'lost'
do not accept 'evaporation'
- [4]**

Question 4:

- (a) as kinetic energy . $\sqrt{\quad}$ 1
if more than one box is ticked, award no mark
- (b) (i) **both the place and the method by which energy is lost are required for each mark**
answers may be in either order
- from the axle **or** bearings by heat **or** sound 1
accept 'from the bearing by friction' or 'the bearings get hot' or 'from the axle when it squeaks'
 - from the wires by heat 1
accept 'the wires get hot'
accept 'from the dynamo as heat or sound' or

*'from the dynamo when it gets hot or squeaks'
do **not** accept 'goes into the air as heat or sound'*

- (ii) it slows down more quickly 1
*accept 'it rotates for a shorter time'
do **not** accept 'it slows down'*
- because it transfers energy to the bulb more quickly 1
*accept 'because it transfers more energy to the
bulb'
do **not** accept 'because it transfers energy to the
bulb'*

[5]

Question 5:

- (a) (i) chemical 1
muscles 1
- (ii) as gravitational potential energy 1
*if more than one box is
ticked, award no mark*
- (b) (i) potential **or** stored to kinetic 1
***both** parts are required for
the mark accept 'movement'
for kinetic*
- (ii) kinetic to thermal **or** sound **or** elastic 1
***both** parts are required for
the mark
accept 'heat' for thermal
energy
accept 'movement' for kinetic*

[5]