

Name of the Student: _____

Max. Marks : 27Marks

Time : 27 Minutes

Mark Schemes

Q1.

- (a) 46 200

accept 46 000

allow 1 mark for correct substitution

ie $0.5 \times 4200 \times 22$ provided no subsequent step

2

- (b) Energy is used to heat the kettle.

1

[3]

Q2.

- (a) it would decrease the time

1

- (b) 720 (J)

allow 1 mark for correct substitution ie 12×60 provided no subsequent step

2

- (c) decreases

1

decreases

1

decreases

1

more than one tick in any row negates the mark

[6]

Q3.

- (a) gravity

accept weight for gravity

air resistance is insufficient

1

- (b) (i) 800

allow 1 mark for correct substitution ie

$$P = \frac{2240}{2.8}$$

provided no subsequent step

2

(ii) 2240 J

1

(c) (i) (vertical) height
accept (height of) stairs

1

(ii) a fast / short time (for a lighter student) may give the greatest power
accept time is a factor

or

a slow / long time (for a heavy student) may give the least power
fitness is insufficient

1

[6]

Q4.

(a) field

correct order only

1

current

1

force

accept motion
accept thrust

1

(b) (i) arrow pointing vertically downwards

1

(ii) increase current / p.d.
accept voltage for p.d.

1

increase strength of magnetic field
accept move poles closer together

1

(iii) reverse (poles of) magnets

1

reverse battery / current

1

(c) (i) 1.5 or 150%
efficiency = $120 / 80 (\times 100)$
gains 1 mark
an answer of 1.5 % or 150
gains 1 mark

2

(ii) efficiency greater than 100%
or

output is greater than input

or

output should be 40 (W)

1

(iii) recorded time much shorter than actual time

accept timer started too late

accept timer stopped too soon

1

[12]