Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Mark Schemes

Q1.

(a)

Energy store	Less than at A	The same as at A	More than at A
The student's gravitational potential energy	✓		
The student's kinetic energy			✓
The bungee cord's elastic potential energy			✓

additional tick in a row negates the mark for that row

3

(b) $E_e = 0.5 \times 78.4 \times 25^2$

1

$E_e = 24\ 500$ (J)

1

(c) greatest spring constant

allow needs largest force (per metre) to stretch the cord

1

(d) A

1

greatest extension before snapping

MP2 dependent on scoring MP1

1

[8]

Q2.

(a) gravitational potential

1

kinetic

1

this order only

(b) $E_e = 0.5 \times 120\ 000 \times 0.015^2$

1

E_e = 13.5 (J)

1

(c) E = 540 (J)

allow their answer from part ***(b)*** × *40*

1

(d) $E_k = 0.45 \times 600$

1

E_k = 270 (J)

1

(e) energy is transferred to the surroundings

1

[8]

Q3.

(a) tape measure
or
metre rule

allow ruler
ignore metre stick

1

(b) $E_p = 50 \times 9.8 \times 1.7$

1

E_p = 833 (J)

1

(c) $P = \frac{1800}{1.44}$

1

P = 1250 (W)

1

(d) stop-clock C

1

(e) $E_k = 0.5 \times 70 \times 2.0^2$

1

E_k = 140 (J)

1

[8]