Mark schemes

Q1.

(a) $\frac{0.21}{0.84} \times 100$

1

25%

1

(b) force (applied to the spring) = spring constant × extension
or
$F = k \times e$

1

(c) $336 = k \times 0.21$

1

$\frac{336}{0.21} = k$

1

k = 1600 (N/m)

1

[6]

Q2.

(a) 1.5 cm

1

(b) any **one** from:
- clamp the stand to the desk
- wear safety goggles / glasses
- stand up / away from apparatus
- limit the total mass used
- have masses over the base of the stand

1

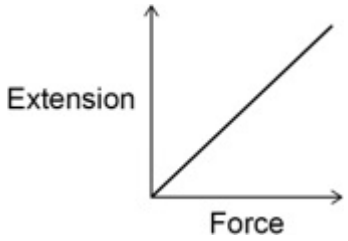
(c) $W = 0.050 \times 9.8$

1

W = 0.49 (N)
*do **not** accept 0.50 (N) alone*

1

(d)



1

(e) $k = \frac{2.0}{0.080}$

1

k = 25 (N/m)

1

[7]

Q3.

(a) 0.015 m

1

(b) spring constant = $\frac{6.0}{0.015}$

allow ecf from part ***(e)***

1

400 (N/m)

1

(c) returns to its original length/shape

allow returns to 3.5 cm

1

[4]