

Name of the Student: _____

Max. Marks : 21 Marks

Time : 21 Minutes

Mark Schemes

Q1.

(a) 20 (°C) 1

(b) largest temperature decrease
allow larger temperature decrease 1

(c) insulation is thicker 1

so temperature decrease will be lower (for all insulation types) 1

(d) Higher 1

Lower 1

(d) polyurethane foam 1

lowest thermal conductivity 1

[8]

Q2.

(a) to vary the current. 1

(b) the temperature of the filament increases
allow the filament heats up 1

(c) $E = 12 \times 8.5$ 1

$E = 102$ (J)
an answer of 102 (J) scores 2 marks 1

(d) (LED lamp)
longer lifetime (per lamp) 1

wastes less energy

or

lower input energy (for same light energy output)

1

[6]

Q3.

(a) any **two** from:

- bungee rope may snap
- rope may extend too much
- student may land in the river

2

(b) gravitational potential

correct order only

1

kinetic

1

elastic potential

1

(c) $\frac{1}{2} \times 40 \times 35^2$

1

24 500 (J)

accept 25 000 (J) (2 significant figures)

1

allow 24 500 (J) with no working shown for 2 marks

[7]