Practice Question Set For GCSE
**Subject : Physics**
**Paper-1 Topic : 3_Conservation Of Energy**

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**Name of the Student**:_____
**Max. Marks : 18 Marks** **Time : 18 Minutes**

**Q1.**

Figure 7 shows a truck lifting a box.

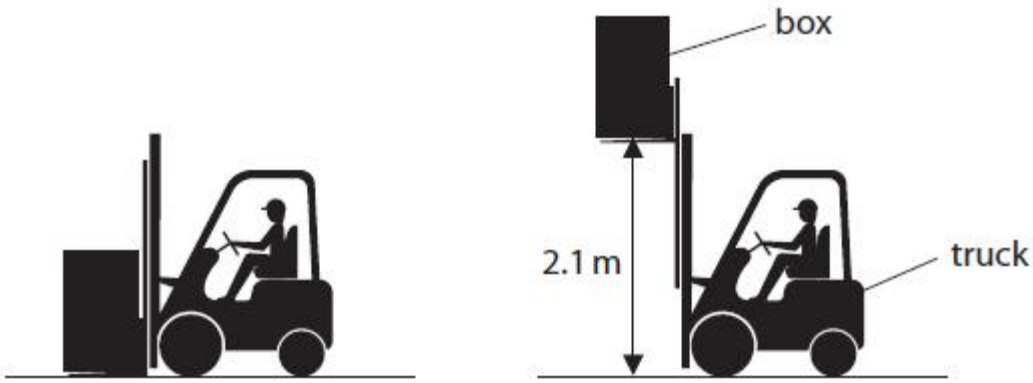


**Figure 7**

The box has a mass of 57 kg.
The truck lifts the box through a vertical height of 2.1 m.
The gravitational field strength, $g$ = 10 N/kg
Calculate the change in the gravitational potential energy of the box.
Use the equation

$$\Delta GPE = m \times g \times \Delta h$$

**(2)**

change in gravitational potential energy = ..... J

**(Total for question = 2 marks)**

**Q2.**

Figure 3 shows the energy transferred by one solar panel in one second.

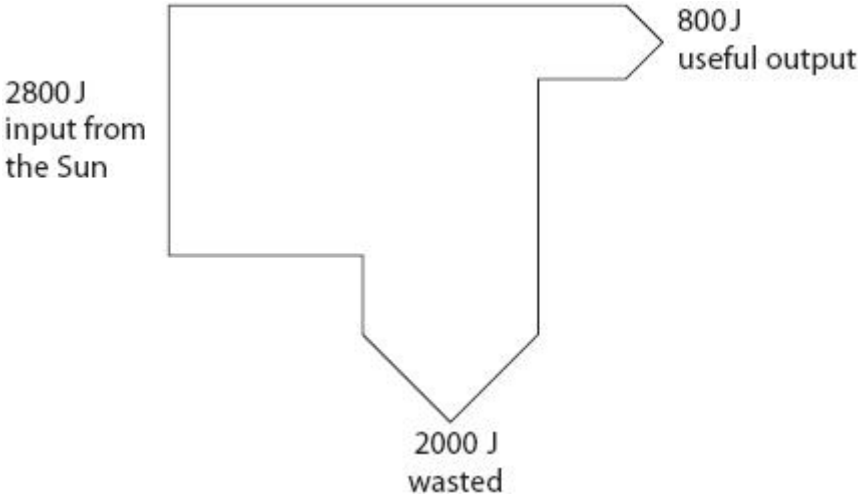


**Figure 3**

(i) Use the information in Figure 3 to calculate the efficiency of the solar panel in generating electricity.

**(3)**

efficiency = .....

(ii) Give a reason why some of the energy reaching the panel from the Sun is not used to generate electricity.

**(1)**

.....

.....

**(Total for question = 4 marks)**

**Q3.**

Figure 14 is an energy diagram for an electric kettle, used to heat water.

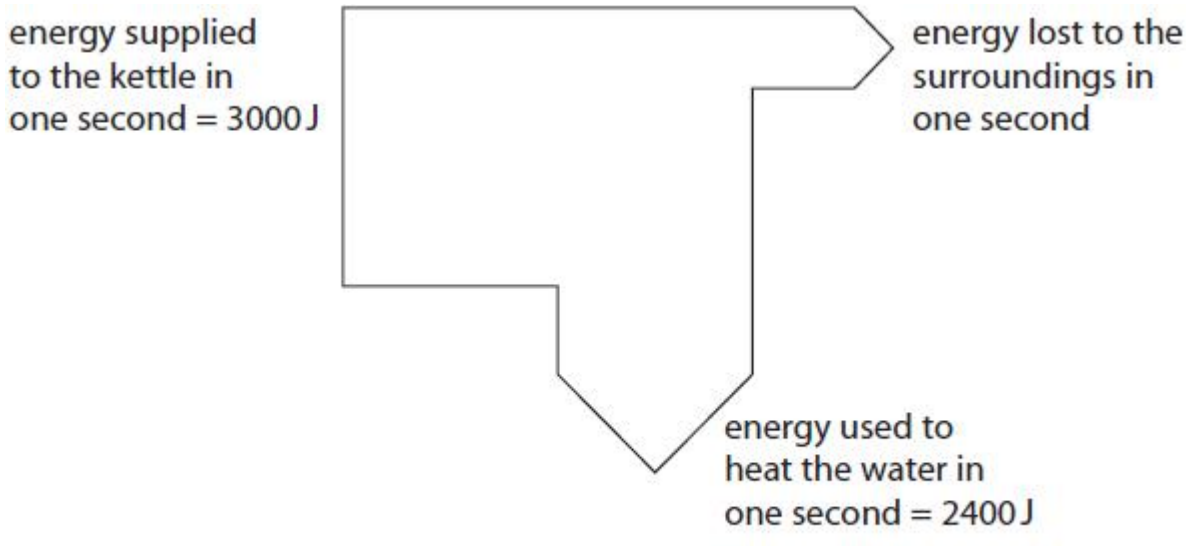


**Figure 14**

(i) Calculate the amount of energy lost to the surroundings in one second.

**(1)**

Energy lost to the surroundings in one second = ..... J

(ii) Calculate the efficiency of the kettle.
Use the equation.

$$\text{efficiency} = \frac{\text{useful energy transferred by the kettle in one second}}{\text{total energy supplied to the kettle in one second}}$$

**(2)**

efficiency .....

**(Total for question = 3 marks)**

**Q4.**

Figure 18 shows a person on a skateboard at the top of a ramp.

At P, the person is not moving.

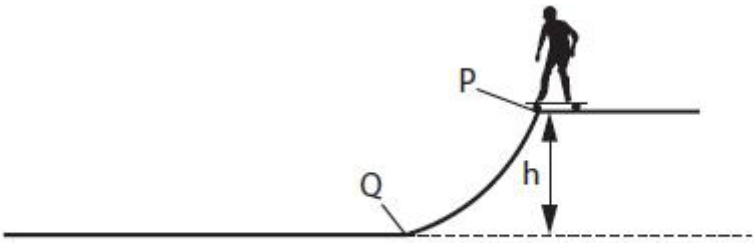


**Figure 18**

The person rides the skateboard down the ramp from P to Q.

The gravitational potential energy of the person decreases by 980 J.

The mass of the person is 35 kg.

Calculate h, the height of the ramp.

Use $g$ = 10 N/kg.

Use the equation

change in gravitational potential energy = $m \times g \times h$

**(2)**

h = ..... m

**(Total for question = 2 marks)**

**Q5.**

Figure 17 shows a football kicked against a wall.

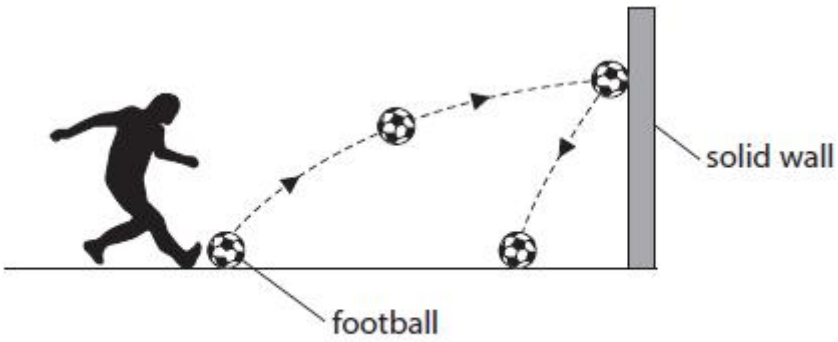


**Figure 17**

The football has a mass of 0.42 kg.

Calculate the height at which the ball hits the wall.

**(3)**

Gravitational field strength = 10 N / kg
Use the equation

$$\Delta GPE = m \times g \times \Delta h$$

height = ..... m

(ii) Calculate the kinetic energy of the football when it is moving at a velocity of 12 m / s.

**(2)**

Use the equation

$$KE = \frac{1}{2} \times m \times v^2$$

kinetic energy = ..... J

(iii) Describe the energy transfers that happen when the ball hits the wall.

**(2)**

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**(Total for question = 7 marks)**