

Q3

- (a) State an example of the conversion of chemical energy to another form of energy.

example

energy conversion [1]

- (b) The electrical output of a solar panel powers a pump. The pump operates a water fountain. The output of the solar panel is 17 V and the current supplied to the pump is 0.27 A.

- (i) Calculate the electrical power generated by the solar panel.

power = [2]

- (ii) The pump converts electrical energy to kinetic energy of water with an efficiency of 35%.

Calculate the kinetic energy of the water delivered by the pump in 1 second.

kinetic energy = [2]

- (iii) The pump propels 0.00014 m^3 of water per second. This water rises vertically as a jet. The density of water is 1000 kg/m^3 .

Calculate

1. the mass of water propelled by the pump in 1 second.

mass = [2]

2. the maximum height of the jet of water.

maximum height = [2]

[Total: 9]