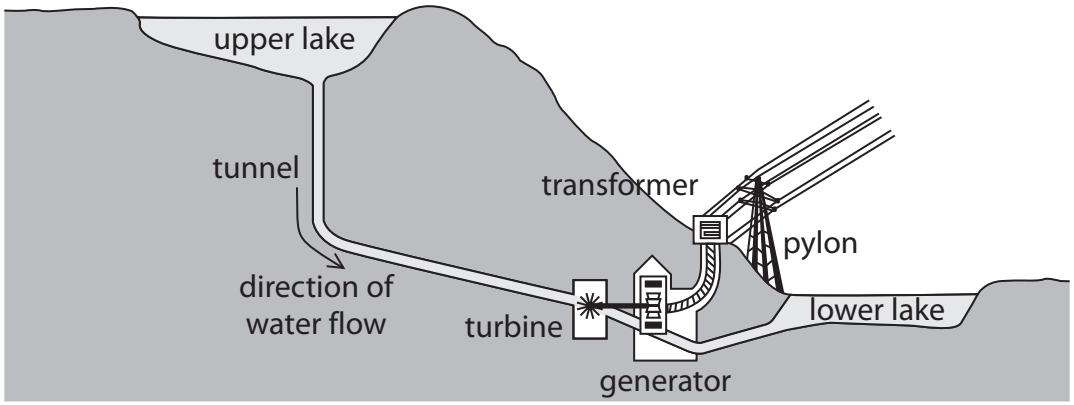
9 The diagram shows a hydroelectric power station.

Water flows down the tunnel and turns a large turbine.



(a) What type of energy decreases when the water flows from the upper lake to the turbine?

(1)

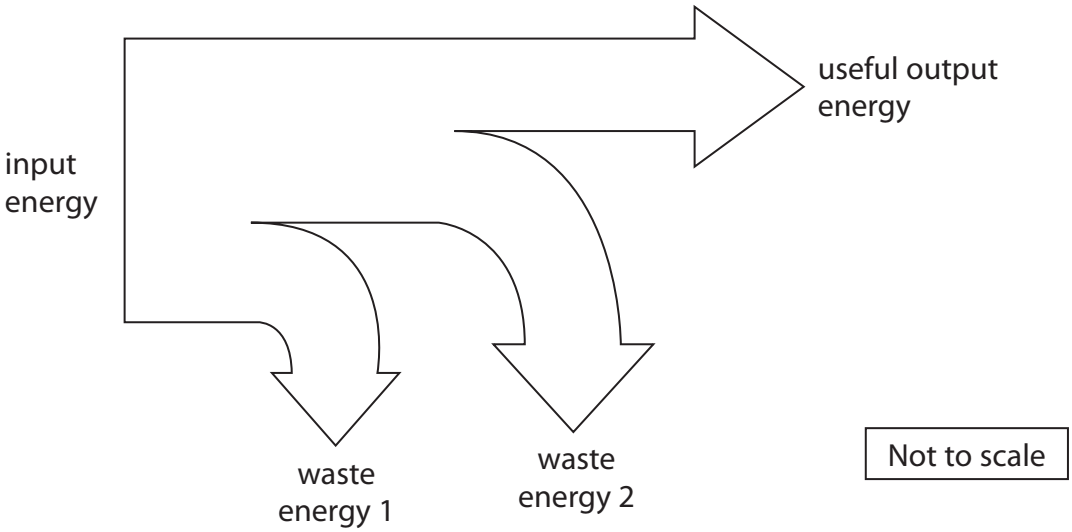
(b) Describe how the turbine and generator produce electricity.

(3)

(c) Suggest why it is important that the turbine turns at constant speed.

(1)

(d) This is a Sankey diagram for the power station.



(i) State the relationship between efficiency, useful energy output and total energy input.

(1)

(ii) The efficiency of the power station is 36%.

The total energy input is 1050 kJ.

Calculate the total wasted energy in kJ.

(4)

total wasted energy = ... kJ

(iii) Name two forms of wasted energy in this power station.

(2)

1 .....

2 .....

(Total for Question 9 = 12 marks)