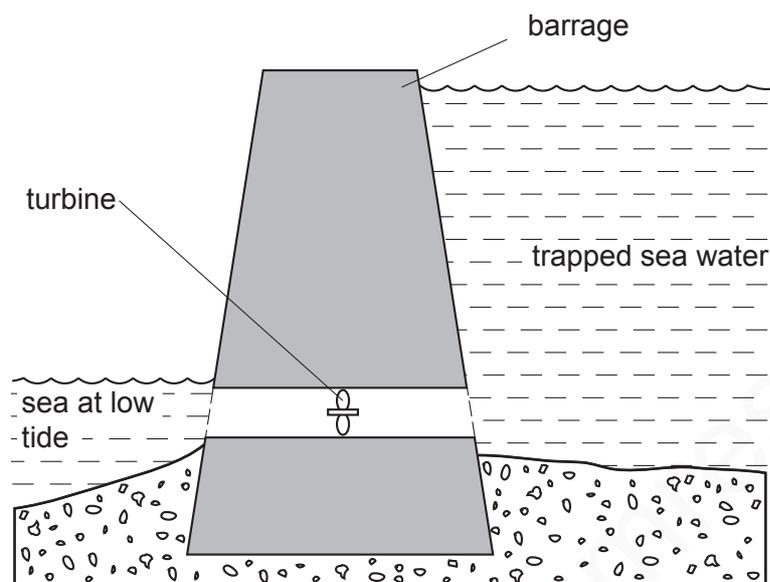


# ENERGY CONVERSION-SET-1

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- 1** A tidal power station is made by building a barrage across the mouth of a river. At high tide the sea water is trapped behind the barrage.



At low tide the water is allowed to flow back into the sea through a turbine.

What is the useful energy change in a tidal power station?

- A electrical energy  $\rightarrow$  energy of position (potential)
  - B electrical energy  $\rightarrow$  energy of motion (kinetic)
  - C energy of motion (kinetic)  $\rightarrow$  energy of position (potential)
  - D energy of position (potential)  $\rightarrow$  electrical energy
- 

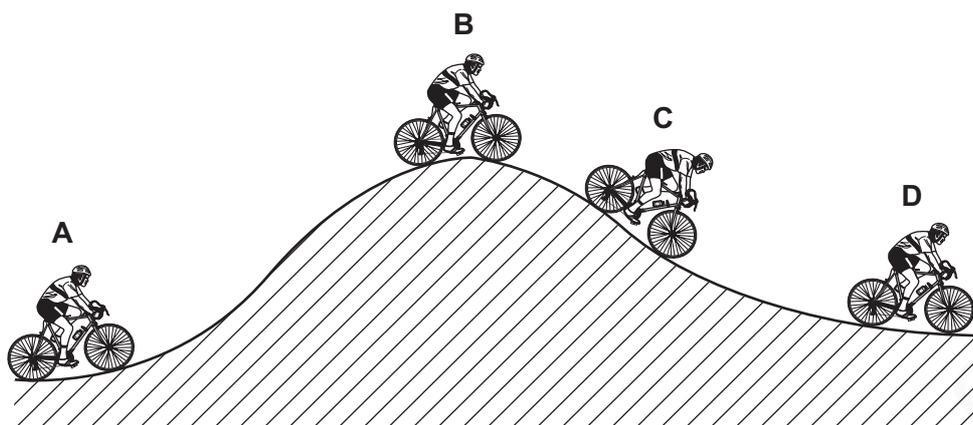
- 2** A child pushes a toy car along a level floor and then lets it go.

As the car slows down, what is the main energy change?

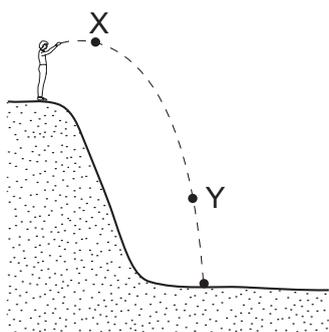
- A from chemical to heat
  - B from chemical to kinetic
  - C from kinetic to gravitational (potential)
  - D from kinetic to heat
-

3 The diagram shows a cyclist riding along a hilly road.

At which position does the cyclist have the least gravitational (potential) energy?



4 A man standing at the top of a cliff throws a stone.  
Which forms of energy does the stone have at X and at Y?



	energy at X	energy at Y
<b>A</b>	gravitational only	kinetic only
<b>B</b>	kinetic only	gravitational only
<b>C</b>	gravitational only	gravitational and kinetic
<b>D</b>	gravitational and kinetic	gravitational and kinetic

5 A skier walks from the bottom of a ski slope to the top and gains 10 000 J of gravitational potential energy.

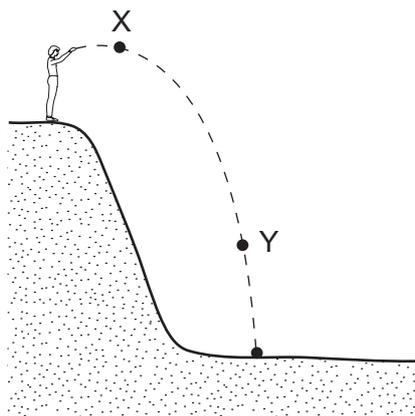
She skis down the slope. At the bottom of the slope, her kinetic energy is 2000 J.



How much energy was converted into thermal energy and sound energy as the skier moved down the slope?

- A** 2000 J      **B** 8000 J      **C** 10000 J      **D** 12000 J

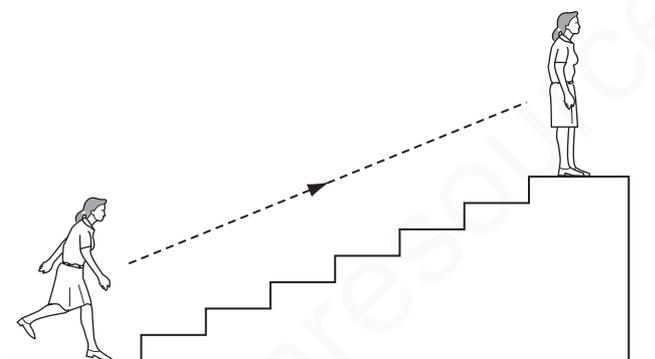
6 A man standing at the top of a cliff throws a stone.



Which forms of energy does the stone have at X and at Y?

	energy at X	energy at Y
<b>A</b>	gravitational only	kinetic only
<b>B</b>	kinetic only	gravitational only
<b>C</b>	gravitational only	gravitational and kinetic
<b>D</b>	gravitational and kinetic	gravitational and kinetic

7 A person uses chemical energy to run up some stairs.



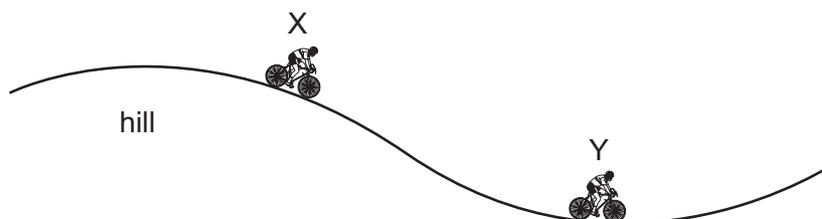
She stops at the top of the stairs.

What has the chemical energy been converted to when she is at the top of the stairs?

- A** kinetic energy and gravitational energy
- B** kinetic energy and strain energy
- C** gravitational energy and heat energy
- D** strain energy and heat energy

8 A cyclist travels down a hill from rest at point X, without pedalling.

The cyclist applies his brakes and the cycle stops at point Y.

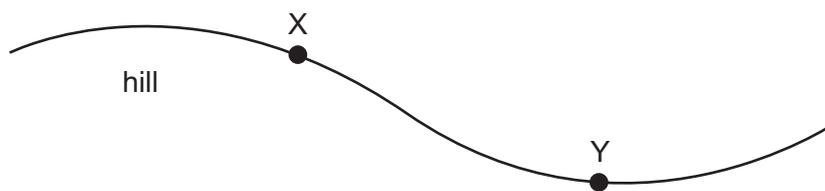


Which energy changes have taken place between X and Y?

- A** gravitational potential → kinetic → thermal (heat)
- B** gravitational potential → thermal (heat) → kinetic
- C** kinetic → gravitational potential → thermal (heat)
- D** kinetic → thermal (heat) → gravitational potential

9 A cyclist travels down a hill from rest at point X without pedalling.

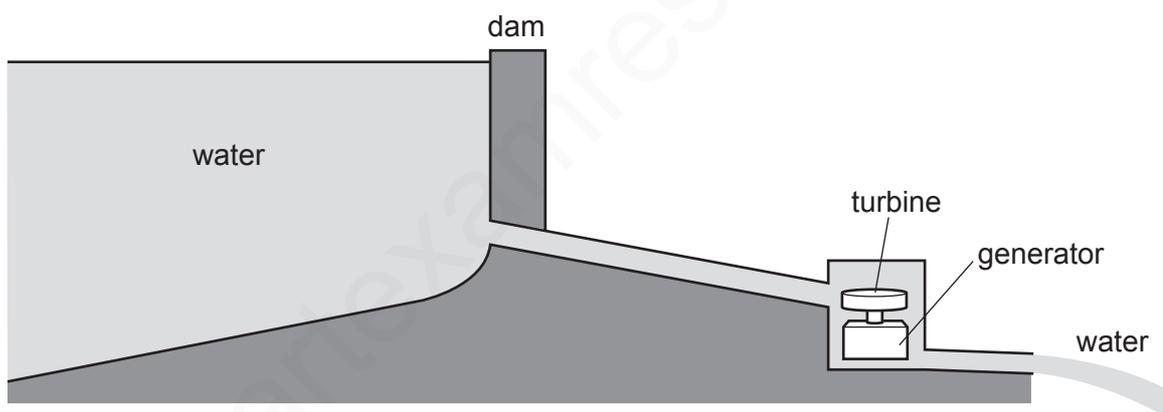
The cyclist applies his brakes and the cycle stops at point Y.



Which energy changes have taken place between X and Y?

- A kinetic  $\rightarrow$  internal (heat)  $\rightarrow$  gravitational potential
- B kinetic  $\rightarrow$  gravitational potential  $\rightarrow$  internal (heat)
- C gravitational potential  $\rightarrow$  internal (heat)  $\rightarrow$  kinetic
- D gravitational potential  $\rightarrow$  kinetic  $\rightarrow$  internal (heat)

10 The diagram shows water stored behind a dam.



The water flows to a turbine and turns a generator.

Which sequence for the conversion of energy is correct?

- A gravitational energy  $\rightarrow$  kinetic energy  $\rightarrow$  electrical energy
- B kinetic energy  $\rightarrow$  gravitational energy  $\rightarrow$  electrical energy
- C gravitational energy  $\rightarrow$  electrical energy  $\rightarrow$  kinetic energy
- D kinetic energy  $\rightarrow$  electrical energy  $\rightarrow$  gravitational energy

- 11** A car is driven on a long journey along a flat, horizontal road. The car stops several times on the journey and its engine becomes hot.

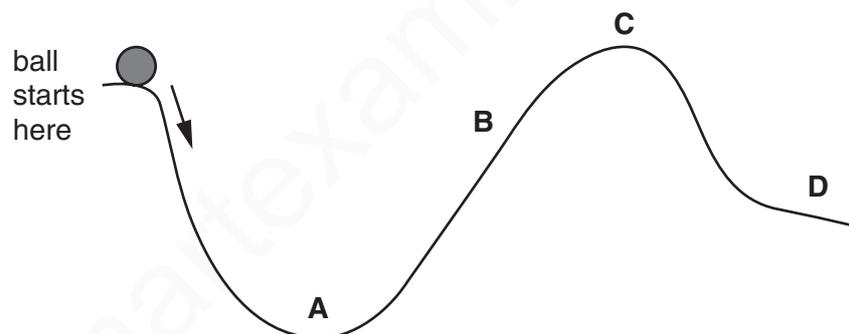
Which type of energy does **not** change during the journey?

- A the chemical energy in the fuel tank
  - B the gravitational energy of the car
  - C the internal (thermal) energy of the engine
  - D the kinetic energy of the car
- 

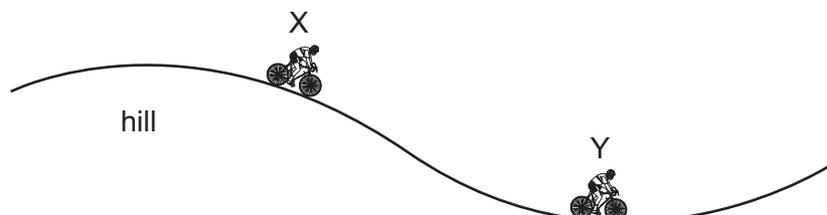
- 12** Which device is designed to convert chemical energy into kinetic energy (energy of motion)?

- A an a.c. generator
  - B a battery-powered torch
  - C a car engine
  - D a wind-up mechanical clock
- 

- 13** A ball is released from rest and rolls down a track from the position shown.  
What is the furthest position the ball could reach?



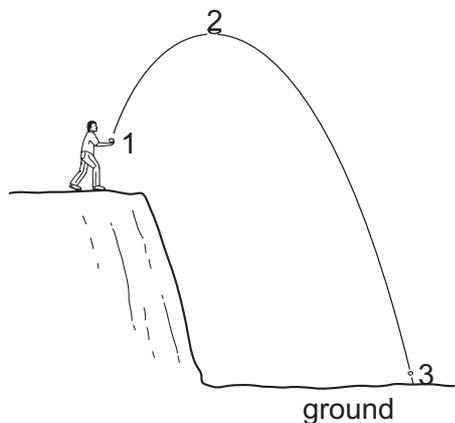
- 14** A cyclist travels down a hill from rest at point X, without pedalling.  
The cyclist applies his brakes and the cycle stops at point Y.



Which energy changes have taken place between X and Y?

- A gravitational potential  $\rightarrow$  kinetic  $\rightarrow$  thermal (heat)
  - B gravitational potential  $\rightarrow$  thermal (heat)  $\rightarrow$  kinetic
  - C kinetic  $\rightarrow$  gravitational potential  $\rightarrow$  thermal (heat)
  - D kinetic  $\rightarrow$  thermal (heat)  $\rightarrow$  gravitational potential
-

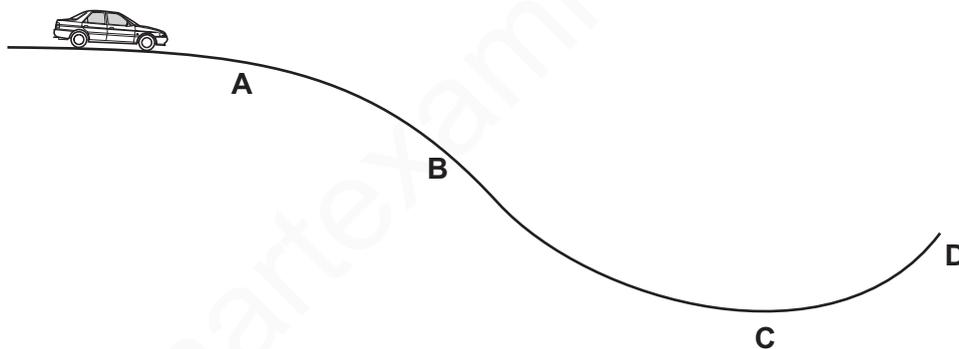
- 15** A stone is thrown from the edge of a cliff. Its path is shown in the diagram.  
 In which position does the stone have its greatest kinetic energy and in which position does it have its least gravitational energy?



	greatest kinetic energy	least gravitational energy
<b>A</b>	1	2
<b>B</b>	2	3
<b>C</b>	3	1
<b>D</b>	3	3

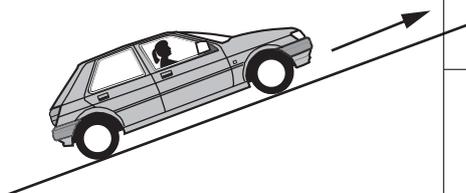
- 16** A car is stationary at the top of a hill with the engine switched off. The brakes are released and the car rolls down the hill.

At which labelled point does the car have the greatest kinetic energy? Ignore friction.



17 A car accelerates along a road as it rises uphill.

Which energy changes are taking place?



	energy of motion (kinetic energy)	energy of position (gravitational potential energy)
A	decreasing	decreasing
B	decreasing	increasing
C	increasing	decreasing
D	increasing	increasing

18 In a car engine, energy stored in the fuel is converted into thermal energy (heat energy) and energy of motion (kinetic energy). In which form is the energy stored in the fuel?

- A chemical
- B geothermal
- C hydroelectric
- D nuclear

19 The diagram shows a microphone being used in an interview.



Which energy change takes place in the microphone?

	input energy	output energy
A	chemical	electrical
B	electrical	chemical
C	electrical	sound
D	sound	electrical