1 - (0625-S 2012-Paper 1 (Core)/1-Q9) **-** *FORCES AND ENERGY*

In which pair of energy sources are both sources renewable?

A oil and coal

B oil and tidal

C tidal and geothermal

D tidal and nuclear fission

2 - (0625-S 2012-Paper 1 (Core)/2-Q9) **-** *FORCES AND ENERGY*

Electricity can be obtained from different energy resources.

Which energy resource is used to obtain electricity without producing heat to boil water?

A coal

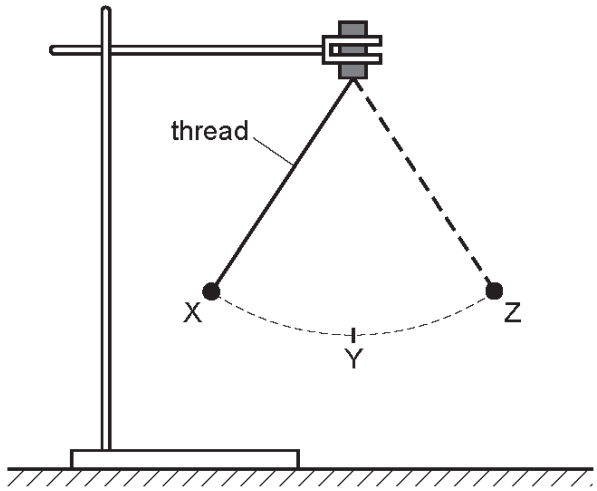
B gas

C hydroelectric

D nuclear

3 - (0625-S 2012-Paper 1 (Core)/3-Q9) - *FORCES AND ENERGY*

An object on a thread is swinging between X and Z, as shown in the diagram. It is momentarily at rest at X and at Z.



An incomplete word equation about the energy of the object is shown below.

gravitational potential energy at X = kinetic energy at Y + ... energy at Y + energy losses

Which form of energy is needed to complete the word equation?

A chemical

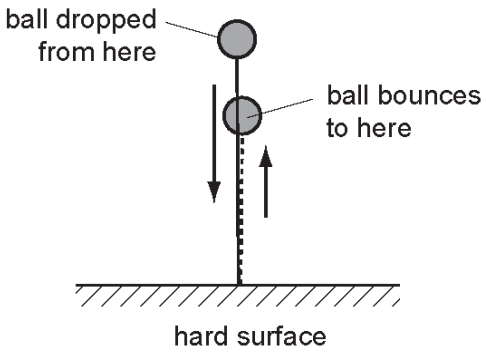
B gravitational potential

C internal

D strain

4 - (0625-S 2012-Paper 1 (Core)/2-Q10) - *FORCES AND ENERGY*

A ball is dropped on to a hard surface and bounces. It does not bounce all the way back to where it started, so it has less gravitational potential energy than when it started.



What happens to the 'lost' energy?

A It is converted into chemical and strain energy.

B It is converted into internal (heat) energy and sound.

C It is destroyed as the ball rises upwards after hitting the ground.

D It is destroyed when the ball hits the ground.

5 - (0625-W 2012-Paper 1 (Core)/1-Q9) - *FORCES AND ENERGY*

A power station uses nuclear fission to obtain energy.

In this process, nuclear energy is **first** changed into

A chemical energy.

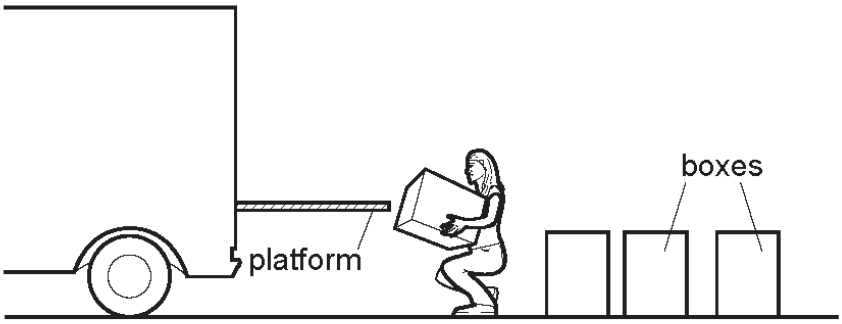
B electrical energy.

C gravitational energy.

D thermal (heat) energy.

6 - (0625-W 2012-Paper 1 (Core)/1-Q10) - *FORCES AND ENERGY*

A person lifts boxes of equal weight on to a platform.



Which quantity will **not** affect the work done by the person?

A the height of the platform above the ground

B the number of boxes lifted

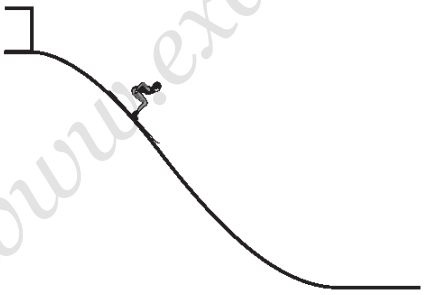
C the time taken to lift the boxes

D the weight of the boxes

7 - (0625-W 2012-Paper 1 (Core)/1-Q11) - *FORCES AND ENERGY*

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.

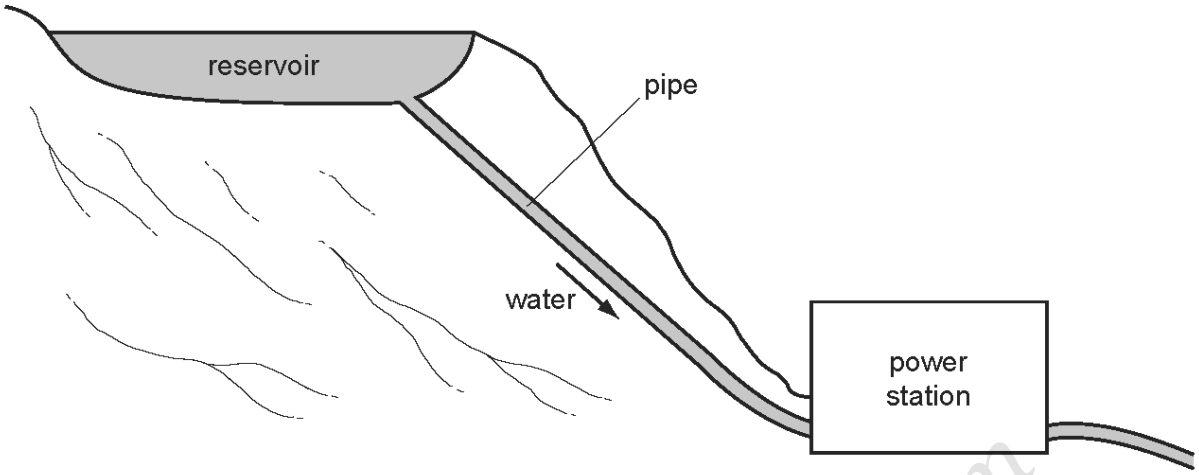


How much energy was converted into thermal energy and sound energy as the skier moved down the slope?

A 2000 J **B** 8000 J **C** 10 000 J **D** 12 000 J

8 - (0625-S 2013-Paper 1 (Core)/3-Q8) - *FORCES AND ENERGY*

The diagram shows a hydroelectric system.



What are the main energy changes taking place?

A chemical energy → kinetic energy → electrical energy

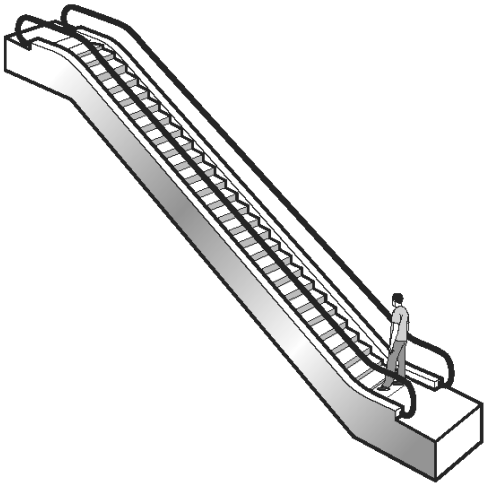
B electrical energy → gravitational energy → kinetic energy

C gravitational energy → kinetic energy → electrical energy

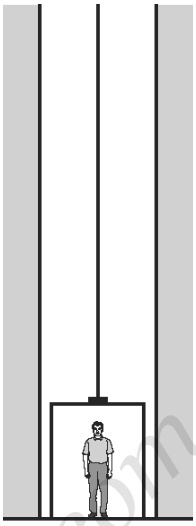
D kinetic energy → electrical energy → gravitational energy

9 - (0625-S 2013-Paper 1 (Core)/1-Q10) - *FORCES AND ENERGY*

An escalator (moving stairs) and a lift (elevator) are both used to carry passengers from the same underground railway platform up to street level.



escalator



lift

The escalator takes 20 seconds to carry a man to street level. The useful work done is *W*. The useful power developed is *P*. The lift takes 30 seconds to carry the same man to street level.

How much useful work is done by the lift, and how much useful power is developed by the lift?

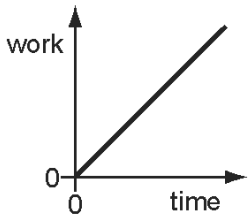
	useful work done by lift	useful power developed by lift
A	more than *W*	less than *P*
B	more than *W*	*P*
C	*W*	less than *P*
D	*W*	*P*

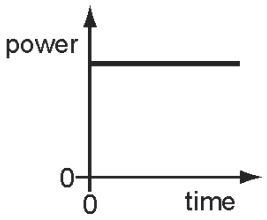
10 - (0625-S 2013-Paper 1 (Core)/2-Q10) - *FORCES AND ENERGY*

A car moves along a level road at constant speed. Work is done by the engine and power is developed by the engine.

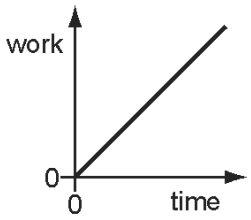
Which pair of graphs shows how the work done and the power developed vary with time?

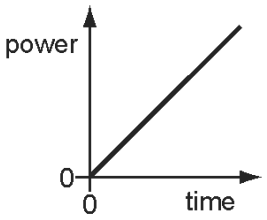
A



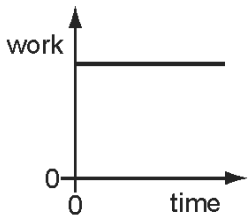


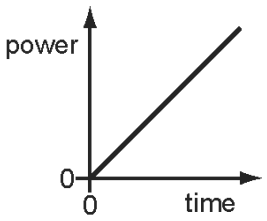
B



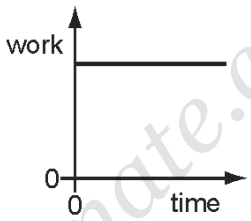


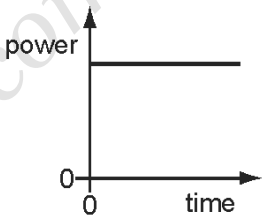
C





D





11 - (0625-W 2013-Paper 1 (Core)/1-Q9) - *FORCES AND ENERGY*

Some energy sources are reliably available at all times, and some are not.

Which row shows three sources all in their correct columns?

	available at all times	not available at all times
A	geothermal	nuclear fission, solar
B	geothermal, nuclear fission	solar
C	solar, nuclear fission	geothermal
D	solar	nuclear fission, geothermal

12 - (0625-W 2013-Paper 1 (Core)/3-Q9) - *FORCES AND ENERGY*

An aeroplane is landing. As it descends towards the runway, its speed reduces.

What are the energy changes that take place during the descent?

A kinetic + gravitational → thermal (heat)

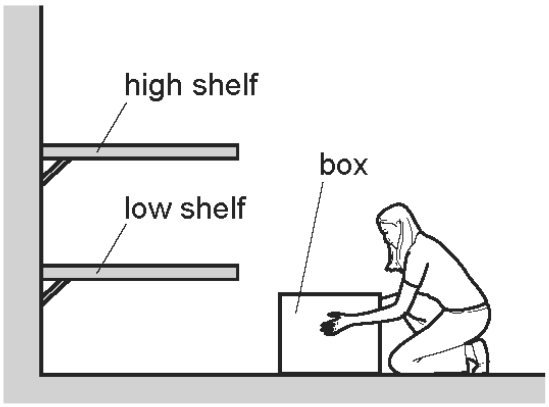
B kinetic → gravitational + thermal (heat)

C kinetic + thermal (heat) → gravitational

D thermal (heat) → kinetic + gravitational

13 - (0625-W 2013-Paper 1 (Core)/1-Q10) - *FORCES AND ENERGY*

A woman in a factory has to lift a box on to a shelf.



Which action involves the woman in doing the **least** amount of work?

A lifting the box quickly to the high shelf

B lifting the box slowly to the high shelf

C lifting the box to the low shelf first then lifting it to the high shelf

D lifting the box to the low shelf instead of to the high shelf

14 - (0625-W 2013-Paper 1 (Core)/3-Q10) - *FORCES AND ENERGY*

Energy from uranium is transferred to electrical energy in a nuclear power station.

What is the correct order of the stages of this process?

A boiler → generator → reactor → turbine

B generator → boiler → turbine → reactor

C reactor → boiler → turbine → generator

D reactor → turbine → boiler → generator

15 - (0625-S 2014-Paper 1 (Core)/1-Q8) - *FORCES AND ENERGY*

Which energy transfer takes place when a matchstick burns?

A chemical to thermal

B chemical to nuclear

C nuclear to chemical

D thermal to chemical

16 - (0625-S 2014-Paper 1 (Core)/2-Q8) - *FORCES AND ENERGY*

In a hydroelectric power station, one form of energy is stored in a lake or reservoir. This energy is then transferred in stages to another useful form, which is the output.

Which row gives the name of the stored energy and the name of the output energy?

	stored energy	output energy
A	electrical	thermal (heat)
B	electrical	kinetic
C	gravitational	electrical
D	kinetic	electrical

17 - (0625-S 2014-Paper 1 (Core)/1-Q9) - *FORCES AND ENERGY*

Four cars are driven along a road.

The table shows the work done by the engine in each car and the time taken by each car.

Which engine produces the most power?

	work done by engine / J	time taken / s
A	50 000	20
B	50 000	40
C	100 000	20
D	100 000	40

18 - (0625-S 2014-Paper 1 (Core)/2-Q9) - *FORCES AND ENERGY*

A certain machine is very efficient.

What does this mean?

A It produces a large amount of power.

B It uses very little energy.

C It wastes very little energy.

D It works very quickly.

19 - (0625-W 2014-Paper 1 (Core)/1-Q9) - *FORCES AND ENERGY*

The list contains three energy resources P, Q and R.

P geothermal energy from hot rocks

Q nuclear fission in reactors

R sunlight on solar panels

Which of these resources are renewable?

A P and Q only

B P and R only

C Q and R only

D P, Q and R

20 - (0625-W 2014-Paper 1 (Core)/3-Q9) - *FORCES AND ENERGY*

When a bicycle lamp is switched on, what is the useful energy change **within the battery**?

A chemical energy to electrical energy

B electrical energy to chemical energy

C electrical energy to light energy

D light energy to chemical energy

21 - (0625-W 2014-Paper 1 (Core)/3-Q10) - *FORCES AND ENERGY*

A student does some work by pulling a suitcase along a corridor.

She now pulls a second suitcase along the corridor.

Which row indicates that the student is now doing twice as much work?

	the force used to pull suitcase	the distance the suitcase is pulled
A	is doubled	is doubled
B	is doubled	is halved
C	stays the same	is doubled
D	stays the same	is halved