

# Energy, Work & Power

## Question Paper 2

Level	IGCSE
Subject	Physics (0625/0972)
Exam Board	Cambridge International Examinations (CIE)
Topic	General Physics
Sub-Topic	Energy, Work & Power
Booklet	Question Paper 2

**Time allowed:** 24 minutes

**Score:** /19

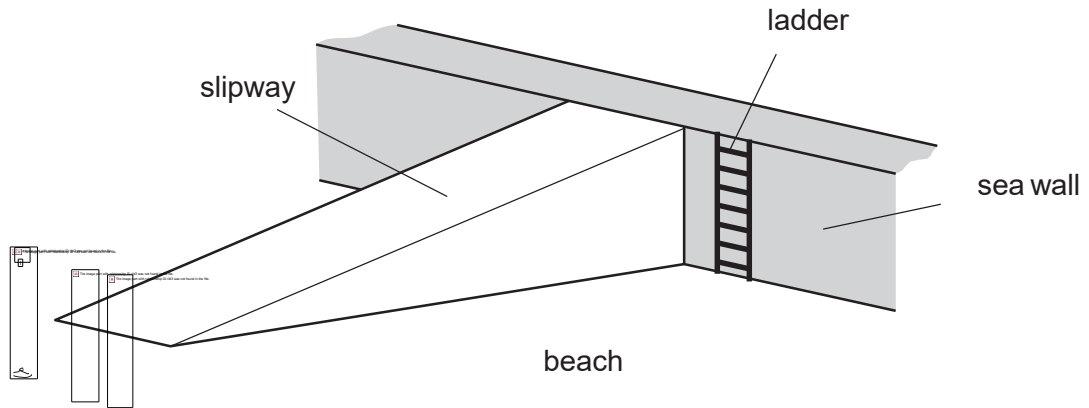
**Percentage:** /100

### Grade Boundaries:

9	8	7	6	5	4	3	2	1
>85%	75%	68%	60%	55%	50%	43%	35%	<30%

## Question 1

Four people of equal weight on a beach use different routes to get to the top of a sea wall.



Which person produces the greatest average power?

person	route	time taken/s
A	runs across the beach, then climbs the ladder	8
B	walks across the beach, then climbs the ladder	16
C	runs up the slipway	5
D	walks up the slipway	10

## Question 2

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

### Question 3

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	50000	20
B	50000	40
C	100000	20
D	100000	40

## Question 4

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

## Question 5

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.

## Question 6

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.

## Question 7

Which movement will require the greatest amount of work to be done?

- A a force of 10 N moving an object a distance of 3.0 m
- B a force of 10 N moving an object a distance of 5.0 m
- C a force of 15 N moving an object a distance of 3.0 m
- D a force of 15 N moving an object a distance of 5.0 m



## Question 8

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

## Question 9

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

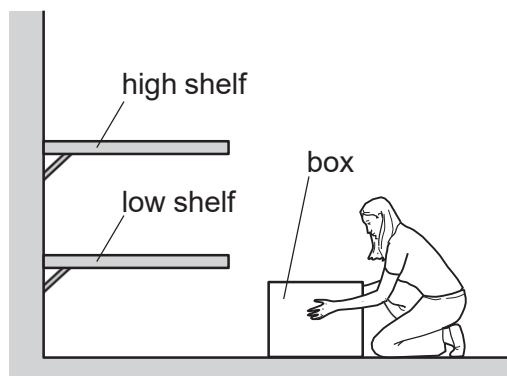
## Question 10

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

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

## Question 12

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

## Question 13

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

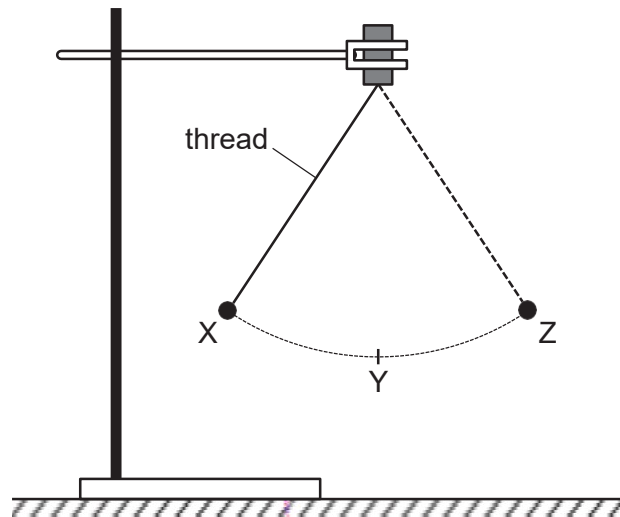
## Question 14

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

## Question 15

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

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

- A. chemical
- B. gravitational potential
- C. internal
- D. Strain.



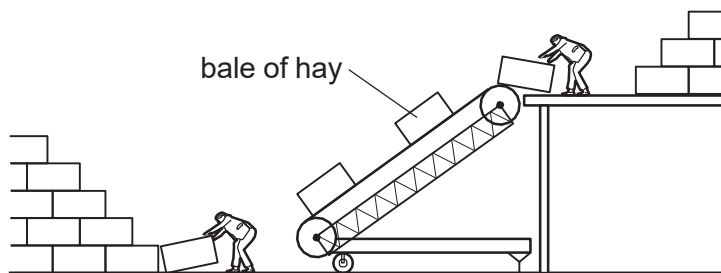
## Question 16

Which row gives an example of the stated form of energy?

	form of energy	example
A	gravitational	the energy due to the movement of a train along a level track
B	internal	the energy due to the flow of cathode rays in a cathode-ray tube
C	kinetic	the energy due to the position of a swimmer standing on a high diving board
D	strain	the energy due to the compression of springs in a car seat

## Question 17

Two farmers use an electrically powered elevator to lift bales of hay. All the bales of hay have the same mass.



As sunset approaches, they increase the speed of the motor so that more bales are lifted up in a given time.

How does this affect the work done in lifting each bale and the useful output power of the motor?

	work done in lifting each bale	useful output power of the motor
A	increases	decreases
B	increases	increases
C	no change	decreases
D	no change	increases

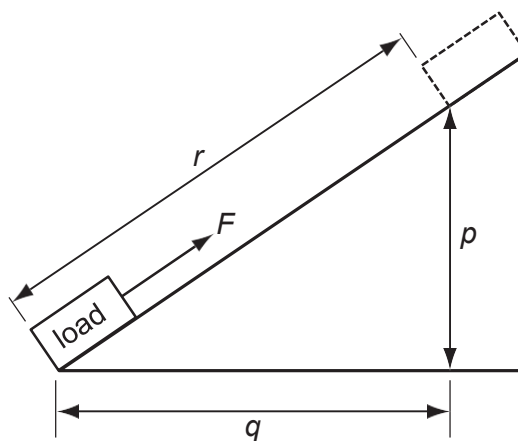
## Question 18

Which energy resource is used to generate electricity by first boiling water?

- A hydroelectric
- B nuclear fission
- C tides
- D waves

## Question 19

A force  $F$  moves a load from the bottom of a slope to the top.



The work done by the force depends on the size of the force, and on a distance.

What is this distance?

- A  $p$                       B  $q$                       C  $r$                       D  $p + q$