Smart Exam Resources

CAMBRIDGE LOWER SECONDARY CHECKPOINT
PRACTISE QUESTIONS -MARKSCHEMES

Subject: Physics Stage -7

Topic: Energy Set-1

1 The burning chemicals in a firework rocket produce a lot of hot gases. The escaping gases produce a constant force on the rocket of 2.4 N.

(a) State two of the energy transfers taking place as the rocket takes off.

1. .....

2. ..... [2]

MARK SCHEME:

chemical to heat ;

chemical to light ;

chemical to kinetic ;

chemical potential to gravitational potential ; max 2

2 Fig. 4.1 shows the energy transferred each second by a television.

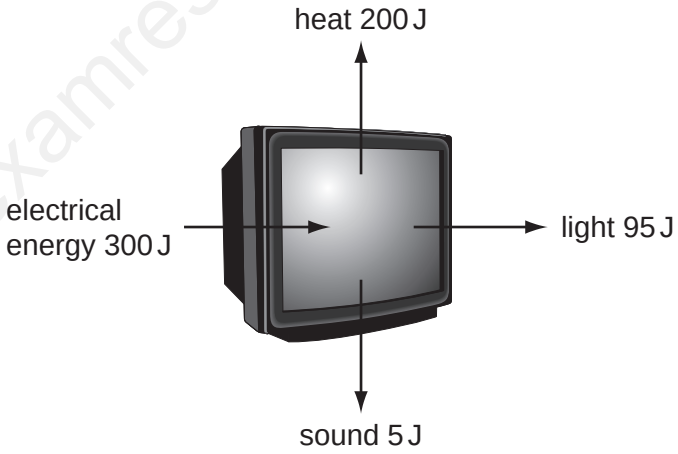


Fig. 4.1

(i) Name the form of energy that is lost as waste energy by the television.

..... [1]

MARK SCHEME:

(i) heat/thermal ; [1]

3 Fig. 3.1 shows an aircraft of mass 3.6×10^5 kg moving with constant acceleration from rest along an airport runway.

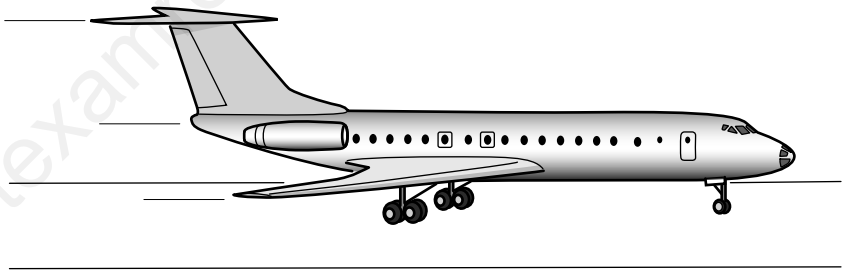


Fig. 3.1

(b) Just after taking off, the aircraft continues to accelerate as it gains height.

State **two** forms of energy gained by the aircraft during this time.

1 .....

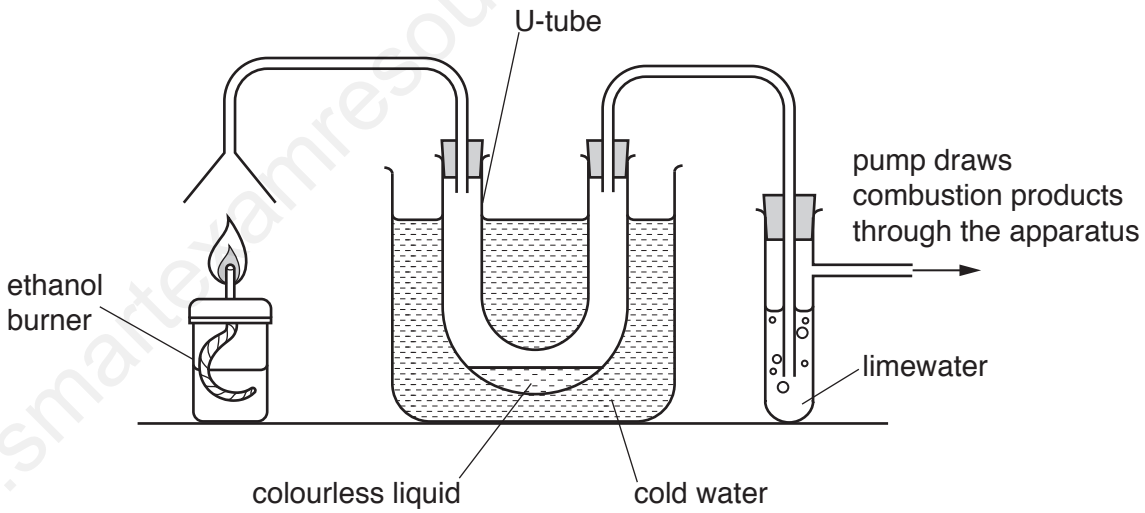
2 .....

[1]

MARK SCHEME:

kinetic and gravitational potential energy ; [1]

4 Fig. 13.2 shows apparatus a student uses to investigate the combustion of ethanol.



(ii) State an energy transformation that occurs when ethanol burns in air.

from ..... energy to ..... energy

[1]

MARK SCHEME:

chemical (potential) to thermal / heat / light

5 Fig. 2.1 shows a mobile phone (cell phone).

mobile phone
containing a battery

Fig. 2.1

(a) Energy is stored inside the mobile phone in a battery.

Describe the energy changes taking place when the battery is being charged.

.....

..... [2]

MARK SCHEME:

(a) electrical energy to chemical energy ;
(also some of) electrical energy to heat ; ignore light [2]
(b) less distortion ;
less interference ; [2]

6 **(a)** A student is listening to music on her computer using headphones.

(i) State the useful energy transformation that happens in the headphones.

from ..... energy to ..... energy [1]

MARK SCHEME:

electrical to sound ;

7 Fig. 12.2 shows a black car and a white car.

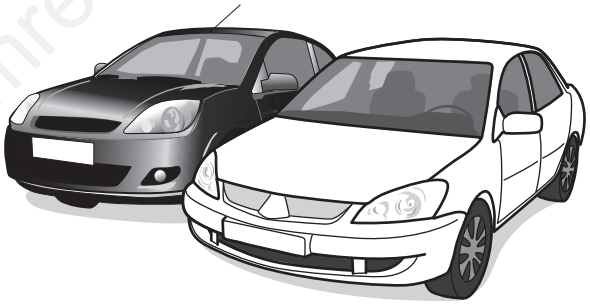


Fig. 12.2

The cars are parked next to each other on a sunny day.

The black car accelerates up a hill.

Apart from thermal energy, state **two** forms of energy gained by the car as it accelerates up the hill.

1 ..... energy

2 ..... energy

[2]

MARK SCHEME:

kinetic ;
gravitational (potential) ;