

1. Nov/2022/Paper_11/No.8

Brakes are used to slow down a moving car.

Into which form of energy is most of the kinetic energy converted as the car slows down?

- A** chemical
- B** elastic
- C** thermal
- D** sound

2. Nov/2022/Paper_11/No.10

The statements describe what happens when the power of a machine is increased.

- 1 The work done in a given time decreases.
- 2 The work done in a given time increases.
- 3 The time taken to do a given quantity of work decreases.
- 4 The time taken to do a given quantity of work increases.

Which statements are correct?

- A** 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

3. Nov/2022/Paper_12/No.8

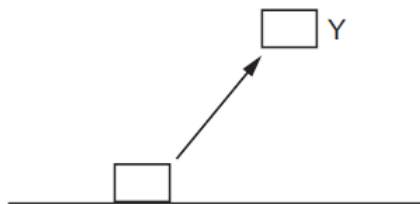
An object falls towards the Earth's surface.

What happens to the gravitational potential energy and to the kinetic energy of the object?

	gravitational potential energy	kinetic energy
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

4. Nov/2022/Paper_12/No.10

A mass is lifted from rest on the ground to Y. There is no air resistance.



P is the increase in gravitational energy of the mass.

Q is the kinetic energy of the mass at Y.

Which expression is equal to the mechanical work done on the mass?

- A** $P + Q$ **B** $P - Q$ **C** $Q - P$ **D** $P \times Q$

5. Nov/2022/Paper_13/No.8

An object falls towards the Earth's surface.

What happens to the gravitational potential energy and to the kinetic energy of the object?

	gravitational potential energy	kinetic energy
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

6. Nov/2022/Paper_13/No.9

What is the unit of work?

- A** J **B** N **C** N/kg **D** W

7. Nov/2022/Paper_13/No.10

In some situations, a force does work.

Which set of conditions increases the quantity of work done by the force?

	magnitude of force	distance moved by the force
A	decreases	decreases
B	decreases	stays the same
C	increases	increases
D	stays the same	decreases

8. Nov/2022/Paper_21/No.8

Brakes are used to slow down a moving car.

Into which form of energy is most of the kinetic energy converted as the car slows down?

- A chemical
- B elastic
- C thermal
- D sound

9. Nov/2022/Paper_21/No.9

An object has kinetic energy of 200 J.

A constant resultant force of 190 N is applied in the direction of its motion through a distance of 10 m.

What is the final kinetic energy of the object?

- A 390 J B 1700 J C 2000 J D 2100 J

10. Nov/2022/Paper_21/No.10

The statements describe what happens when the power of a machine is increased.

- 1 The work done in a given time decreases.
- 2 The work done in a given time increases.
- 3 The time taken to do a given quantity of work decreases.
- 4 The time taken to do a given quantity of work increases.

Which statements are correct?

- A 1 and 3 B 1 and 4 C 2 and 3 D 2 and 4

11. Nov/2022/Paper_22/No.8

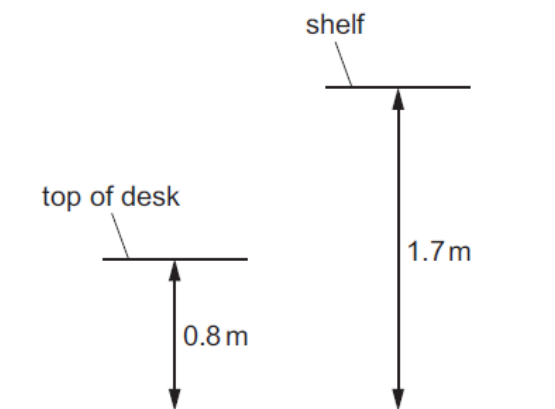
An object falls towards the Earth's surface.

What happens to the gravitational potential energy and to the kinetic energy of the object?

	gravitational potential energy	kinetic energy
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

12. Nov/2022/Paper_22/No.9

A boy takes 0.60 s to lift a book of mass 0.60 kg from the top of a desk and place it on a shelf. The top of the desk is 0.80 m above the floor, and the shelf is 1.7 m above the floor. The gravitational field strength is 10 N/kg.

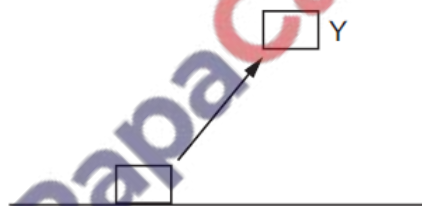


Which power does the boy develop?

- A 0.9 W B 1.7 W C 9.0 W D 17 W

13. Nov/2022/Paper_22/No.10

A mass is lifted from rest on the ground to Y. There is no air resistance.



P is the increase in gravitational energy of the mass.

Q is the kinetic energy of the mass at Y.

Which expression is equal to the mechanical work done on the mass?

- A $P + Q$ B $P - Q$ C $Q - P$ D $P \times Q$

14. Nov/2022/Paper_23/No.8

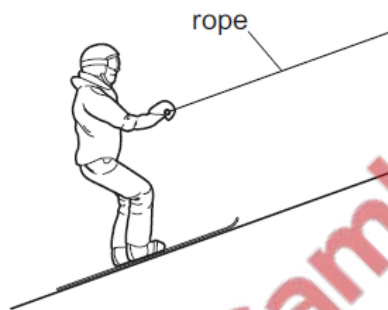
An object falls towards the Earth's surface.

What happens to the gravitational potential energy and to the kinetic energy of the object?

	gravitational potential energy	kinetic energy
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

15. Nov/2022/Paper_23/No.9

A skier is pulled up a short straight slope at constant speed by a rope.



The tension in the rope is 100 N and there is a combined frictional and air resistance force of 20 N acting on the skier.

The slope is 10 m long and the skier rises 1.5 m vertically.

How much work is done by the rope pulling the skier up the slope?

- A 120 J B 150 J C 1000 J D 1200 J

16. Nov/2022/Paper_23/No.10

In some situations, a force does work.

Which set of conditions increases the quantity of work done by the force?

	magnitude of force	distance moved by the force
A	decreases	decreases
B	decreases	stays the same
C	increases	increases
D	stays the same	decreases

17. Nov/2022/Paper_31/No.4(b)

- (b) The student lifts the 5.0 kg object from the floor onto a table. He does 75 J of work on the object in lifting it onto the table.

State the amount of gravitational potential energy gained by the object due to being lifted onto the table.

gravitational potential energy gained by object = J [1]

18. Nov/2022/Paper_32/No.3(b)

- (b) We can measure temperature by using physical properties that vary with temperature.

- (i) State the physical property that we use to measure temperature in a liquid-in-glass thermometer.

..... [1]

- (ii) State another physical property that we use to measure temperature.

..... [1]

- (a) Table 3.1 contains incomplete information about the input energy and the useful output energy for a number of devices. The table is only complete for the microphone.

Complete Table 3.1 by writing in each blank space.

Table 3.1

device	input energy	useful output energy
microphone	sound	electrical
electric fire	electrical	
wind turbine		electrical
	electrical	sound

[3]

- (b) A tennis player hits a ball over the net and it bounces as shown in Fig. 3.1.

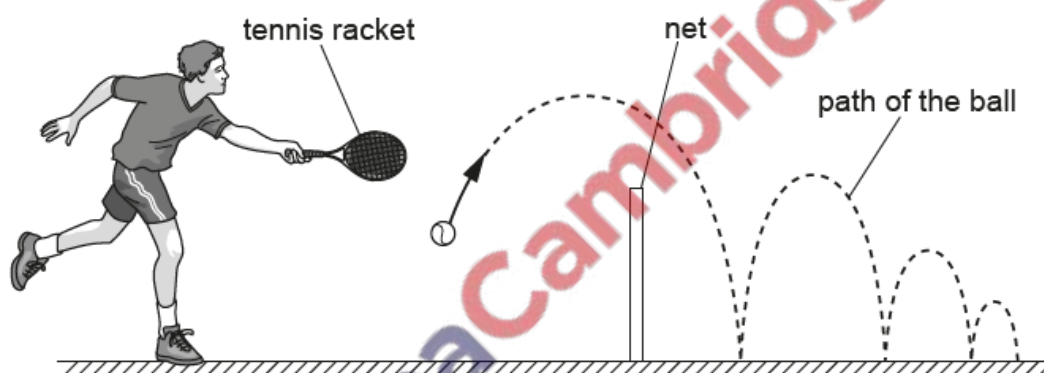


Fig. 3.1

- (i) Complete the sentences about energy transfers.

1. When the player swings the tennis racket, his body converts energy to energy. [1]

2. When the tennis ball is moving upwards, the ball gains energy. [1]

- (ii) Explain why the height gained by the ball decreases with each successive bounce.

..... [1]

[Total: 6]

Two blocks, A and B, are joined by a thin thread that passes over a frictionless pulley. Block A is at rest on a rough horizontal surface and block B is held at rest, just below the pulley.

Fig. 1.1 shows the thread hanging loose.

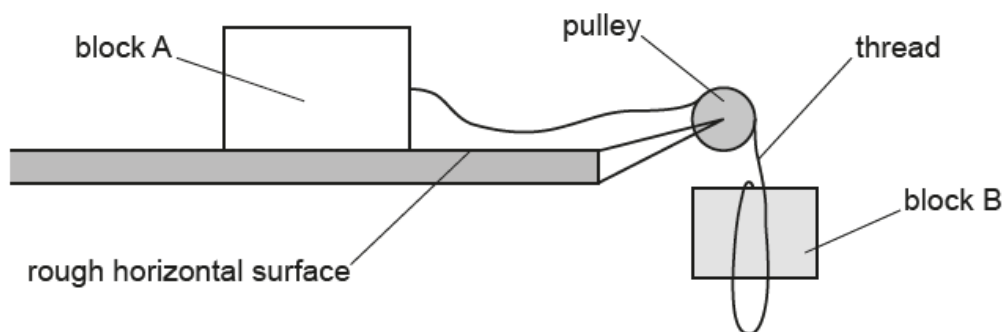


Fig. 1.1 (not to scale)

Block B is released and it falls vertically. The thread remains loose until block B has fallen a distance of 0.45 m.

The mass of block B is 0.50 kg.

- (a) Calculate the change in the gravitational potential energy (g.p.e.) of block B as it falls through 0.45 m.

change in g.p.e. [2]

(b) Fig. 5.1 shows a factory worker standing 3 m from the block.

State and explain the main process by which thermal energy is transferred to the worker.

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..... [3]

