

IGCSE Cambridge Topical Past Papers

PHYSICS 9-1

0972 Paper 2

2020 — 2025

Chapter 1	General Physics	Page 1
Chapter 2	Thermal Physics	Page 83
Chapter 3	Properties of Waves, Including Light and Sound	Page 124
Chapter 4	Electricity and Magnetism	Page 175
Chapter 5	Atomic Physics	Page 254



1 - (0972/21_Summer_2020_Q1)

A pendulum makes 50 complete swings in 2 min 40 s.

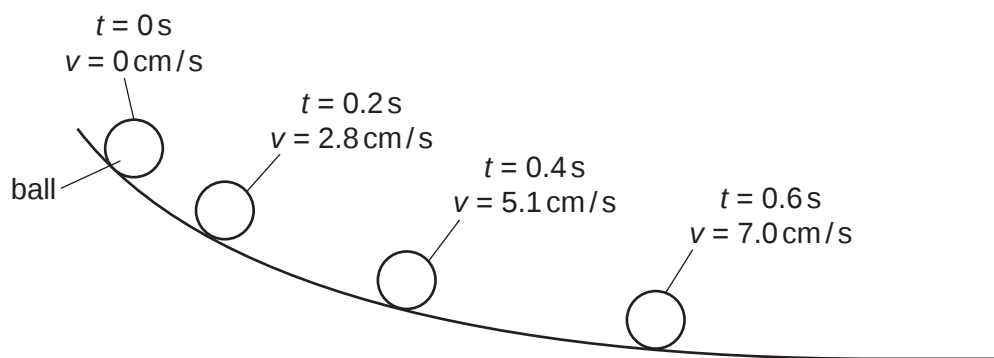
What is the time period for 1 complete swing?

- A** 1.6 s **B** 3.2 s **C** 4.8 s **D** 6.4 s

2 - (0972/21_Summer_2020_Q2)

A student investigates the motion of a ball rolling down a slope.

The diagram shows the speed v of the ball at different times t .



Which statement describes the motion of the ball?

- A** The acceleration is not constant.
B The acceleration is negative.
C The speed is decreasing.
D The velocity is constant.

3 - (0972/21_Summer_2020_Q3)

Which statement about acceleration is correct?

- A** It is related to the changing speed of an object.
B It is the distance an object travels in one second.
C It is the force acting on an object divided by the distance it travels in one second.
D It is the force acting on an object when it is near to the Earth.

4 - (0972/21_Summer_2020_Q4)

Which statement correctly describes the effects of placing a heavy load in a car?

- A** It is easier to accelerate the car and easier to bring the car to rest.
- B** It is easier to accelerate the car but more difficult to bring the car to rest.
- C** It is more difficult to accelerate the car and more difficult to bring the car to rest.
- D** It is more difficult to accelerate the car but easier to bring the car to rest.

5 - (0972/21_Summer_2020_Q5)

A mass of 6.0 kg rests on the surface of a planet.

On this planet, $g = 20 \text{ N/kg}$.

What is the weight of the object?

- A** 0.30 N **B** 0.60 N **C** 60 N **D** 120 N

6 - (0972/21_Summer_2020_Q6)

The mass of a measuring cylinder is 190 g.

400 cm³ of liquid is put into the measuring cylinder.

The total mass of the measuring cylinder and the liquid is 560 g.

Four solid objects are lowered in turn into the liquid. The densities of the objects are shown.

- 1 0.40 g/cm³
- 2 0.90 g/cm³
- 3 1.2 g/cm³
- 4 2.7 g/cm³

Which objects will float in the liquid?

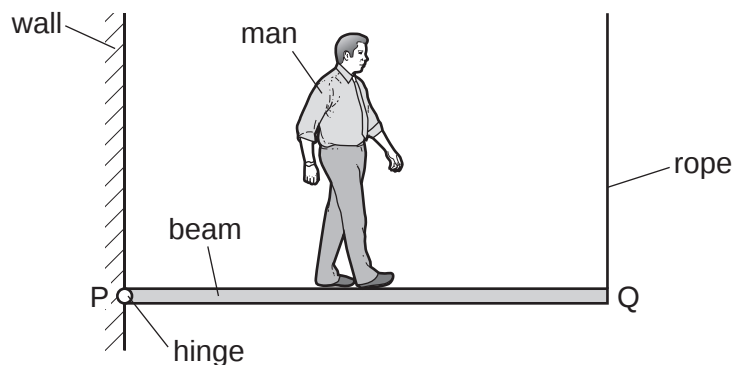
- A** 1 only **B** 1 and 2 only **C** 1, 2 and 3 **D** 3 and 4 only

7 - (0972/21_Summer_2020_Q7)

The diagram shows a wooden beam PQ, of negligible weight, which is attached to a wall by a hinge at P and kept in a horizontal position by a vertical rope attached at Q.

The beam is 3.0 m in length.

A man of weight 800 N walks along the beam from P to Q.



What is the distance of the man from P when the tension in the rope at Q becomes equal to 500 N?

- A** 0.53 m **B** 1.1 m **C** 1.9 m **D** 2.5 m

8 - (0972/21_Summer_2020_Q8)

Which quantity is a vector?

- A** acceleration
B distance
C speed
D mass

9 - (0972/21_Summer_2020_Q9)

An object of mass 1.2 kg is moving with a velocity of 2.0 m/s when it is acted on by a force of 4.0 N. The velocity of the object increases to 5.0 m/s.

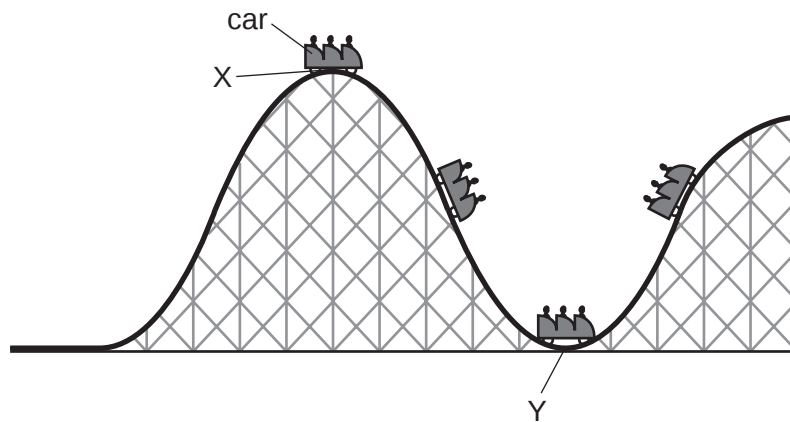
For what period of time does the force act on the object?

- A** 0.90 s **B** 1.1 s **C** 1.5 s **D** 3.6 s

10 - (0972/21_Summer_2020_Q10)

The diagram shows part of a rollercoaster ride with the car at different positions.

The car runs freely down from position X to position Y and up the hill on the other side.



What happens to the kinetic energy and to the gravitational potential energy of the car as it moves from position X to position Y?

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

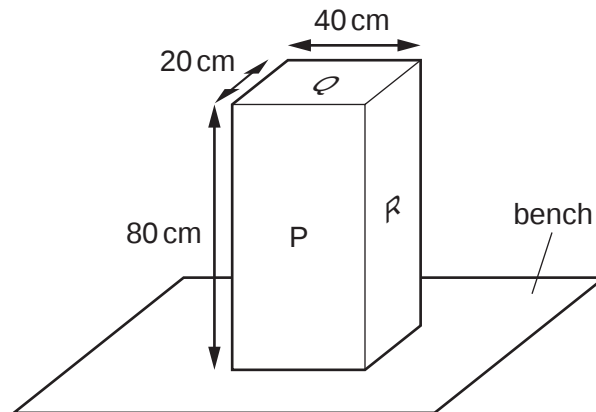
11 - (0972/21_Summer_2020_Q11)

Which energy resource does **not** have the Sun as the original source?

- A** coal
- B** geothermal
- C** hydroelectric
- D** wind

12 - (0972/21_Summer_2020_Q12)

The diagram shows a solid block resting on a bench. The dimensions of the block are shown.



On which labelled surface should the block rest to produce the smallest pressure on the bench?

- A** P
- B** Q
- C** R
- D** P, Q and R produce the same pressure

13 - (0972/21_Summer_2020_Q13)

The pressure due to the liquid on an object immersed in that liquid is 4500 Pa.

The density of the liquid is 900 kg/m^3 .

What is the depth of the object below the surface of the liquid?

- A** 0.5 cm
- B** 2.0 cm
- C** 50 cm
- D** 200 cm

14 - (0972/22_Summer_2020_Q1)

Five athletes P, Q, R, S and T compete in a race. The table shows the finishing times for the athletes.

athlete	P	Q	R	S	T
finishing time / s	22.50	24.40	25.20	26.50	23.20

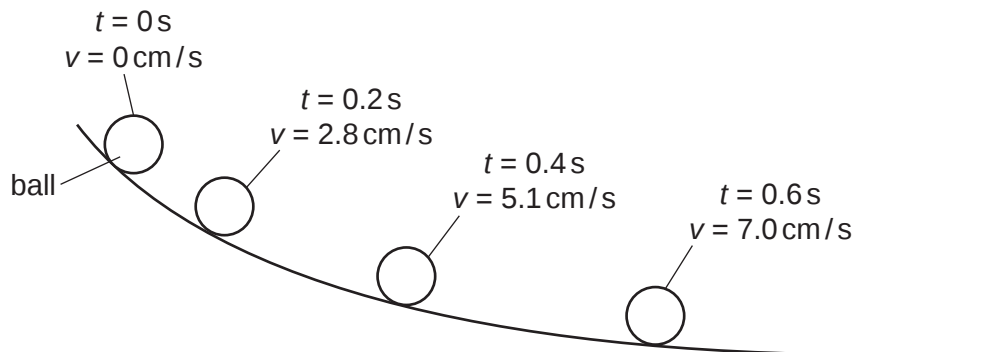
Which statement is correct?

- A** Athlete P won the race and was 0.70 s ahead of the athlete in second place.
- B** Athlete P won the race and was 1.90 s ahead of the athlete in second place.
- C** Athlete S won the race and was 1.30 s ahead of the athlete in second place.
- D** Athlete S won the race and was 2.10 s ahead of the athlete in second place.

15 - (0972/22_Summer_2020_Q2)

A student investigates the motion of a ball rolling down a slope.

The diagram shows the speed v of the ball at different times t .



Which statement describes the motion of the ball?

- A** The acceleration is not constant.
- B** The acceleration is negative.
- C** The speed is decreasing.
- D** The velocity is constant.

16 - (0972/22_Summer_2020_Q3)

Which statement about acceleration is correct?

- A** It is related to the changing speed of an object.
- B** It is the distance an object travels in one second.
- C** It is the force acting on an object divided by the distance it travels in one second.
- D** It is the force acting on an object when it is near to the Earth.

17 - (0972/22_Summer_2020_Q4)

Which statement correctly describes the effects of placing a heavy load in a car?

- A** It is easier to accelerate the car and easier to bring the car to rest.
- B** It is easier to accelerate the car but more difficult to bring the car to rest.
- C** It is more difficult to accelerate the car and more difficult to bring the car to rest.
- D** It is more difficult to accelerate the car but easier to bring the car to rest.

18 - (0972/22_Summer_2020_Q5)

A space probe is taken from the Earth to Mars.

The force of gravity on the surface of Mars is less than the force of gravity on the surface of the Earth.

How do the weight and the mass of a space probe on the surface of Mars compare to their values when the probe is on the surface of the Earth?

	weight on Mars	mass on Mars
A	decreased	decreased
B	decreased	unchanged
C	unchanged	decreased
D	unchanged	unchanged

19 - (0972/22_Summer_2020_Q6)

Water has a density of 1000 kg/m^3 .

A rectangular swimming pool has an average depth of 1.6 m.

The length of the pool is 25 m.

The width of the pool is 10 m.

What is the mass of the water in the swimming pool?

- A** 2.5 kg **B** 400 kg **C** 400 000 kg **D** 800 000 kg

20 - (0972/22_Summer_2020_Q7)

A satellite orbits the Earth at constant speed in a circular orbit.

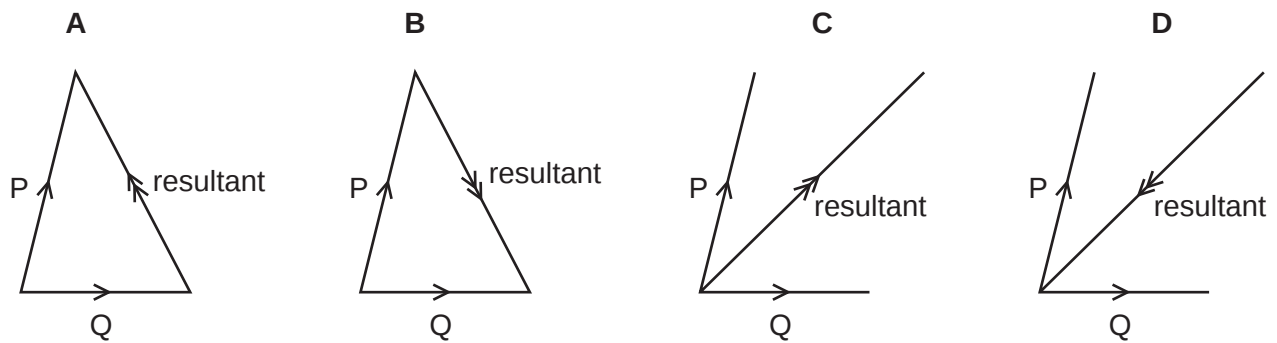
Which statement is correct?

- A** The resultant force on the satellite is zero.
B The resultant force on the satellite is towards the Earth.
C The resultant force on the satellite is away from the Earth.
D The resultant force on the satellite is in the direction of motion.

21 - (0972/22_Summer_2020_Q8)

Two forces P and Q act on an object.

Which diagram shows the resultant of these two forces?



22 - (0972/22_Summer_2020_Q9)

An object is moving at $+3.0 \text{ m/s}$.

A force acts on the object.

After a time, the object is moving at -4.0 m/s .

The mass of the object is 5.0 kg .

What is the change in momentum of the body?

- A** -35 kg m/s **B** -5.0 kg m/s **C** $+5.0 \text{ kg m/s}$ **D** $+35 \text{ kg m/s}$

23 - (0972/22_Summer_2020_Q10)

Which energy resource is **not** renewable?

- A** geothermal
- B** nuclear fission
- C** solar
- D** wind

24 - (0972/22_Summer_2020_Q11)

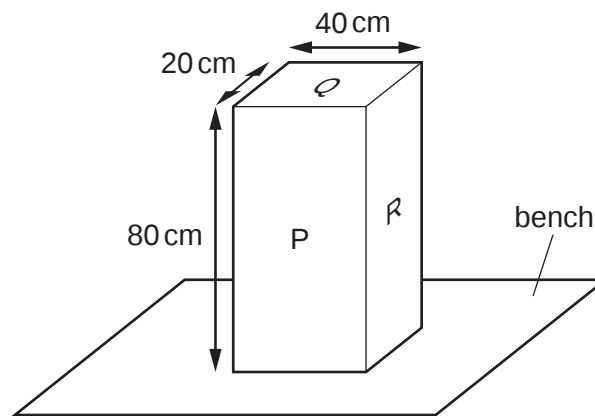
A car of mass 500 kg is moving at 10 m/s. The engine does work on the car and the speed increases to 16 m/s.

How much work is done by the engine to increase the speed of the car?

- A** 3000 J **B** 9000 J **C** 39 000 J **D** 78 000 J

25 - (0972/22_Summer_2020_Q12)

The diagram shows a solid block resting on a bench. The dimensions of the block are shown.



On which labelled surface should the block rest to produce the smallest pressure on the bench?

- A** P
B Q
C R
D P, Q and R produce the same pressure

26 - (0972/22_Summer_2020_Q13)

An object is 60 cm below the surface of a liquid. The pressure due to the liquid at this depth is 9000 Pa.

What is the density of the liquid?

- A** 15 kg/m³ **B** 540 kg/m³ **C** 1500 kg/m³ **D** 54 000 kg/m³

1 – B	21 – C	41 –	61 –	81 –
2 – A	22 – A	42 –	62 –	82 –
3 – A	23 – B	43 –	63 –	83 –
4 – C	24 – C	44 –	64 –	84 –
5 – D	25 – A	45 –	65 –	85 –
6 – B	26 – C	46 –	66 –	86 –
7 – C	27 –	47 –	67 –	87 –
8 – A	28 –	48 –	68 –	88 –
9 – A	29 –	49 –	69 –	89 –
10 – C	30 –	50 –	70 –	90 –
11 – B	31 –	51 –	71 –	91 –
12 – A	32 –	52 –	72 –	92 –
13 – C	33 –	53 –	73 –	93 –
14 – A	34 –	54 –	74 –	94 –
15 – A	35 –	55 –	75 –	95 –
16 – A	36 –	56 –	76 –	96 –
17 – C	37 –	57 –	77 –	97 –
18 – B	38 –	58 –	78 –	98 –
19 – C	39 –	59 –	79 –	99 –
20 – B	40 –	60 –	80 –	100 –

To access the full eBook and explore more content, visit:

www.examinent.com