Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Tuesday 2 June 2026

Morning (Time: 1 hour 45 minutes)

Paper reference **1PH0/1F**

Physics
PAPER 1

Foundation Tier

You must have:
Calculator, ruler, Equation Booklet (enclosed)

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*

Information

- The total mark for this paper is 100.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- In questions marked with an **asterisk (*)**, marks will be awarded for your ability to structure your answer logically, showing how the points that you make are related or follow on from each other where appropriate.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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P 7 9 2 0 6 A 0 1 3 6

Pearson

Answer ALL questions. Write your answers in the spaces provided.

Some questions must be answered with a cross in one of the four boxes ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 (a) Figure 1 shows a list of the colours of light in the visible spectrum.

Two of the colours in the spectrum are missing from this list.

Write the missing colour in each box.

(2)

red

orange

.....

green

.....

indigo

violet

Figure 1

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(b) The visible spectrum of light is a part of the electromagnetic spectrum.

Figure 2 shows the electromagnetic spectrum, in order of increasing frequency, with the visible spectrum missing.

Which of the arrows, in Figure 2, shows where the visible spectrum should be?

(1)

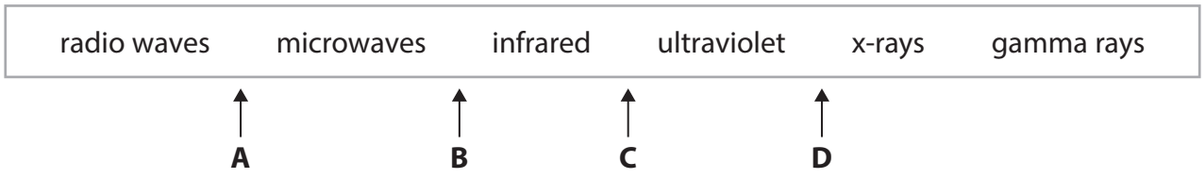


Figure 2

- ☒ **A**
- ☒ **B**
- ☒ **C**
- ☒ **D**

(c) Gamma rays have the highest frequency of all the waves in the electromagnetic spectrum.

(i) State the part of an atom that can emit gamma rays.

(1)

.....

.....

(ii) Gamma rays can be harmful but can also be useful.

State how gamma rays can be harmful and useful.

(2)

harmful

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useful

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(Total for Question 1 = 6 marks)

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2 (a) Figure 3 shows a photograph taken with a thermal imaging camera.



(Source: © synthetick/Shutterstock)

Figure 3

The camera detects thermal radiation emitted by the deer.

Which part of the electromagnetic spectrum is the same as thermal radiation?

(1)

- ☒ **A** infrared
- ☒ **B** ultraviolet
- ☒ **C** x-rays
- ☒ **D** gamma rays

(b) A black object can absorb and emit thermal radiation.

Which row of the table best describes the black object?

(1)

	absorber of thermal radiation	emitter of thermal radiation
☒ **A**	poor	good
☒ **B**	good	good
☒ **C**	poor	poor
☒ **D**	good	poor

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(c) Some students investigated how the colour of an object affects the amount of thermal radiation it emits.

Figure 4 shows their diagram of the equipment they used.

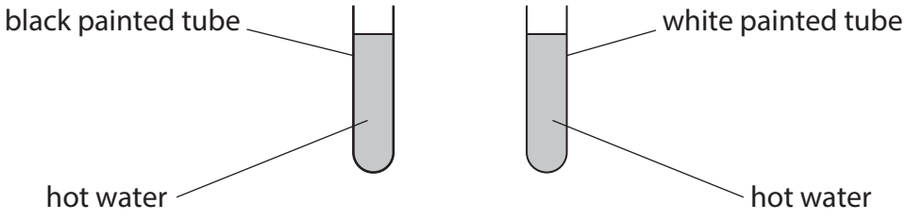


Figure 4

The students measured the temperature of the water in each tube every minute.

(i) State **one** measuring device used for the investigation.

(1)

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Figure 5 shows a graph of the students' results.

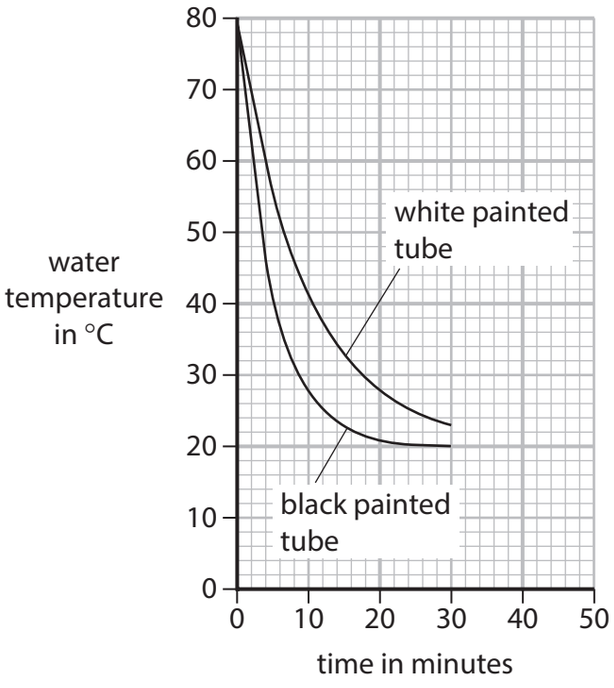


Figure 5

(ii) Use the graph in Figure 5 to find the water temperature in the black painted tube at a time of 10 minutes.

(1)

temperature = ... °C

(iii) Use the graph in Figure 5 to determine the difference between the water temperatures in the tubes at a time of 10 minutes.

(1)

temperature difference = ... °C

(iv) Use the graph in Figure 5 to estimate room temperature.

(1)

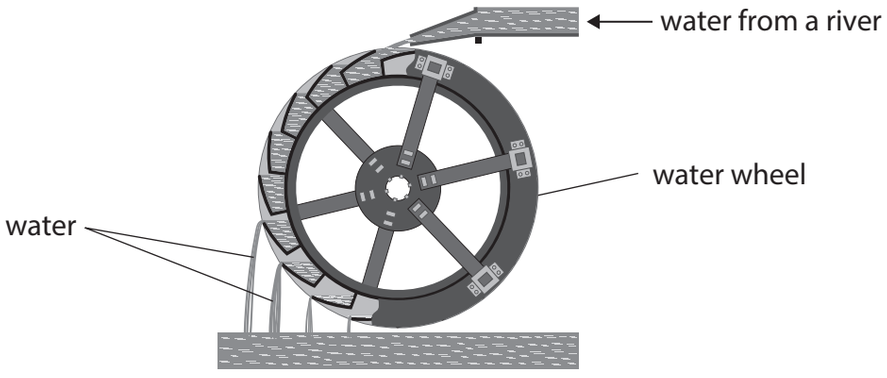
room temperature = ... °C

(Total for Question 2 = 6 marks)

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3 (a) Figure 6 shows a water wheel.

Water from a river is used to turn the wheel to provide energy for a water mill.



(Source: © Kuno Toming/Shutterstock)

Figure 6

(i) The energy supplied to turn the wheel comes from the change in gravitational potential energy (GPE) of the falling water.

Calculate the change in GPE of 17 kg of water when it falls through a height of 2.0 m.

gravitational field strength, g = 10 N/kg

Use the equation

change in GPE = mass × g × change in height

(2)

change in GPE = ... J

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(ii) Figure 7 shows a diagram of the energy transfers in one second for the water wheel.

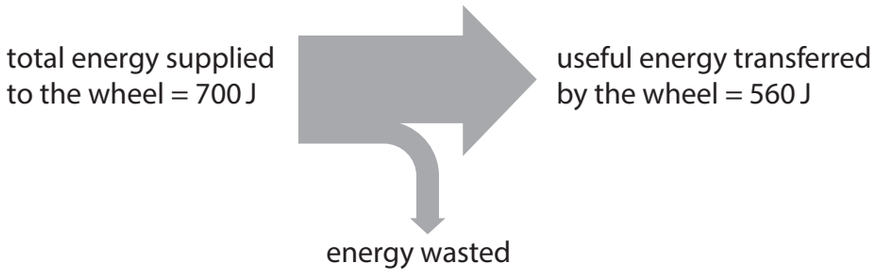


Figure 7

Calculate the energy wasted in one second.

(1)

energy wasted = ... J

(iii) Calculate the efficiency of the water wheel.

Use the equation

$$\text{efficiency} = \frac{\text{(useful energy transferred by the device)}}{\text{(total energy supplied to the device)}}$$

(2)

efficiency = ...

(iv) Describe what happens to the wasted energy.

(2)

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(b) Wind farms and oil-fired power stations are used to generate electricity.

(i) State **one advantage** of using wind farms, instead of oil-fired power stations, to generate electricity.

(1)

.....

.....

(ii) State **one disadvantage** of using wind farms, instead of oil-fired power stations, to generate electricity.

(1)

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(Total for Question 3 = 9 marks)

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4 This question is about light as it travels.

(a) Figure 8 shows two rays of light passing through a lens.

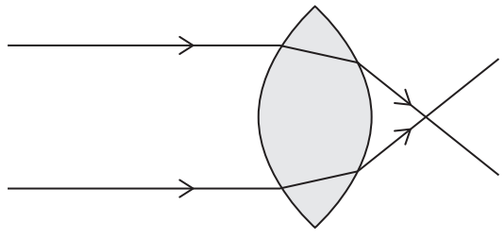


Figure 8

(i) The rays of light change direction as they pass through the lens.

This change in direction is called

(1)

- ☒ **A** absorption
- ☒ **B** diffusion
- ☒ **C** reflection
- ☒ **D** refraction

(ii) The power of the lens in Figure 8 is 12.5 dioptres.

Calculate the focal length of the lens.

Use the equation

$$\text{focal length in metres} = \frac{1}{\text{power in dioptres}}$$

(2)

focal length = ... m

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(iii) Describe how a student could use the lens in Figure 8 to produce a real image of an object.

(2)

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(b) Figure 9 and Figure 10 show rays of light travelling inside water.

The rays have reached the boundary between water and air.

The critical angle for the water-air boundary is 49°.

Complete Figure 9 and Figure 10 to show what happens to the rays of light after they reach the boundary.

(2)

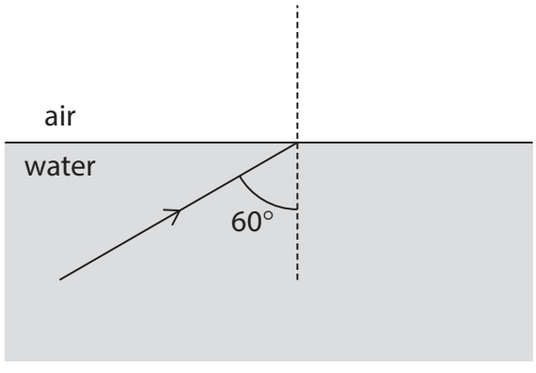


Figure 9

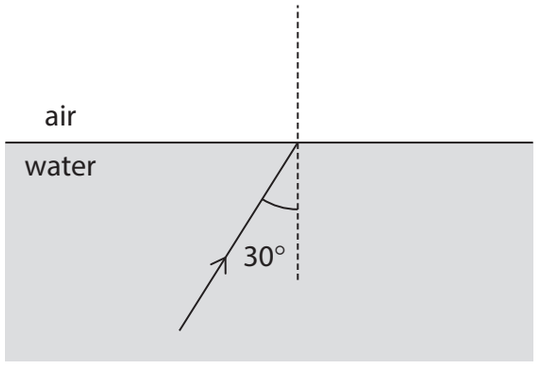


Figure 10

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(c) Light takes 1.3 s to travel from the Moon to the Earth.

Light travels at a speed of 300 000 km/s.

Calculate the distance between the Moon and the Earth.

Use the equation

distance = speed × time

State the unit.

(3)

distance = ... unit.....

(Total for Question 4 = 10 marks)

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5 (a) Nickel-63 is a radioactive substance.

A nucleus of nickel-63 contains 28 protons and 35 neutrons.

(i) Complete Figure 11 to show the mass number and atomic number of nickel-63.

(2)

..... Ni .....

Figure 11

(ii) The number of electrons that orbit the nucleus in an atom of nickel-63 is

(1)

☒ **A** 63

☒ **B** 35

☒ **C** 28

☒ **D** 7

(iii) A sample of nickel-63 emits beta minus (β^-) particles.

Beta minus (β^-) particles are

(1)

☒ **A** electrons

☒ **B** positrons

☒ **C** protons

☒ **D** neutrons

(b) Phosphorus-32 is a radioactive substance used in research.

State **two** precautions that technicians should take when working with phosphorus-32.

(2)

1 .....

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2 .....

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(c) Figure 12 shows how a sample of phosphorus-32 decays with time.

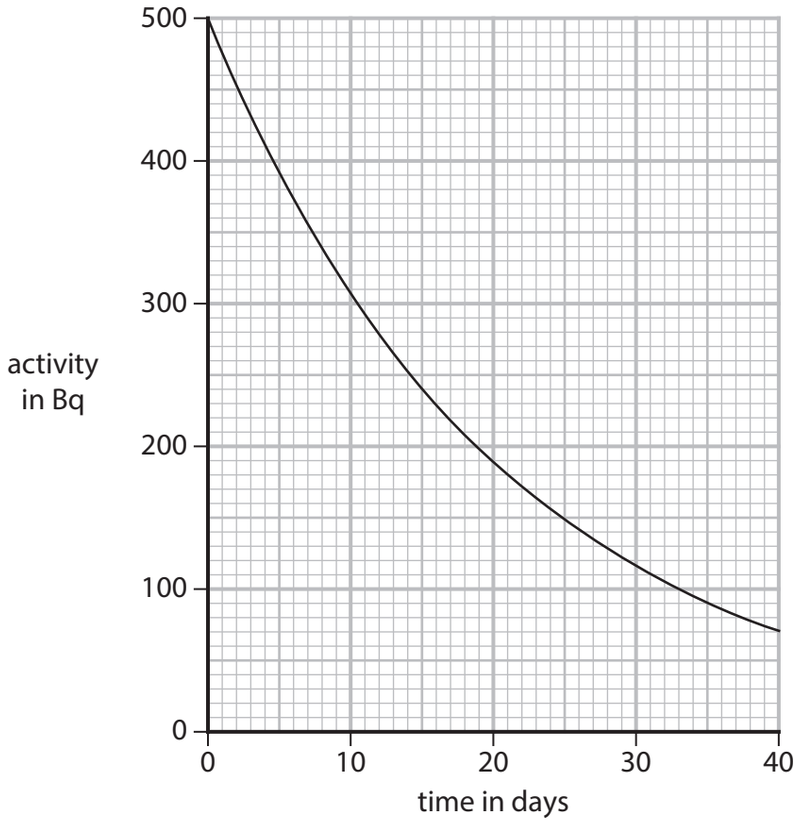


Figure 12

Using the graph in Figure 12:

(i) state the time when the activity of the sample is 300 Bq

(1)

time = ... days

(ii) state the time when the activity of the sample is 150 Bq

(1)

time = ... days

(iii) calculate the half-life of phosphorus-32.

(1)

half-life = ... days

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(iv) The activity of the sample decreased from the original 500 Bq to 70 Bq.

Calculate the percentage of the phosphorus-32 remaining.

(2)

percentage = ... %

(Total for Question 5 = 11 marks)

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6 This question is about motion and forces.

(a) Figure 13 shows a firework rocket accelerating upwards.

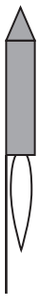


Figure 13

(i) The force causing the acceleration is 0.80 N.

The mass of the rocket is 0.070 kg.

Calculate the acceleration of the rocket.

Use the equation

$$a = \frac{F}{m}$$

(2)

acceleration = ... m/s^2

(ii) As the rocket travels higher, the mass of the rocket decreases.

Suggest a reason for this decrease in mass.

(1)

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(b) Which of these is a scalar quantity?

(1)

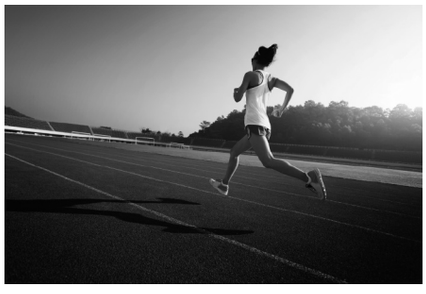
- ☒ **A** acceleration
- ☒ **B** energy
- ☒ **C** force
- ☒ **D** velocity

(c) Which of these is a unit of weight?

(1)

- ☒ **A** kg
- ☒ **B** kg m
- ☒ **C** kN
- ☒ **D** N m

(d) Figure 14 shows an athlete running on a track.



(Source: © lzf/Shutterstock)

Figure 14

(i) The athlete accelerates from 4.0 m/s to 4.6 m/s in a time of 5.0 s.

Calculate the acceleration of the athlete.

Use the equation

$$a = \frac{(v - u)}{t}$$

(2)

acceleration = ... m/s^2

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(ii) The athlete runs 12 laps of the track.

One lap of the track is 400 m.

During the run, the athlete speeds up and slows down several times.

The athlete wears a wrist stopwatch.

Describe how the athlete could determine the average speed for the run.

(3)

(Total for Question 6 = 10 marks)

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7 (a) Which of these planets is furthest from the Sun?

(1)

- ☒ **A** Mars
- ☒ **B** Neptune
- ☒ **C** Uranus
- ☒ **D** Venus

(b) Use words from the box to complete the sentences.

(2)

a comet	a galaxy	a moon	a star

Titan orbits Saturn.

Titan is .....

Pons-Brooks orbits the Sun. The orbit of Pons-Brooks goes beyond the orbits of all the planets in the Solar System.

Pons-Brooks is .....

(c) (i) The gravitational field strength on Mercury is 3.7 N/kg.

Calculate the weight of an 18 kg mass on Mercury.

(2)

weight = ... N

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(ii) The mass of the Sun is 330 000 times the mass of the Earth.

The mass of Jupiter is 320 times the mass of the Earth.

Calculate the ratio of the mass of the Sun to the mass of Jupiter.

(2)

ratio = ... : 1

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*(d) Scientists believe that our Sun started its life cycle in a cloud of gas and dust.

Describe the evolution of a star that has a similar mass to our Sun.

Your answer should

- name the stages in the evolution of the star
- describe what causes the star to change from one stage to the next.

(6)

(Total for Question 7 = 13 marks)

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8 (a) Figure 15 shows a diagram of a longitudinal sound wave travelling through air.

The dots represent air particles.

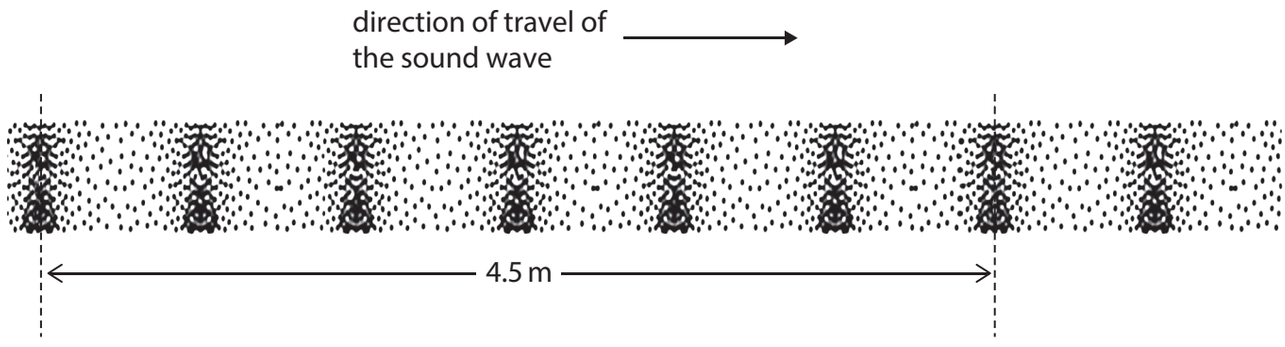


Figure 15

(i) Using information from Figure 15, determine the wavelength of this sound wave.

(1)

wavelength = ... m

(ii) Describe the motion of one air particle in a longitudinal sound wave.

(2)

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(b) A student uses the apparatus shown in Figure 16 to determine the speed of sound in air.

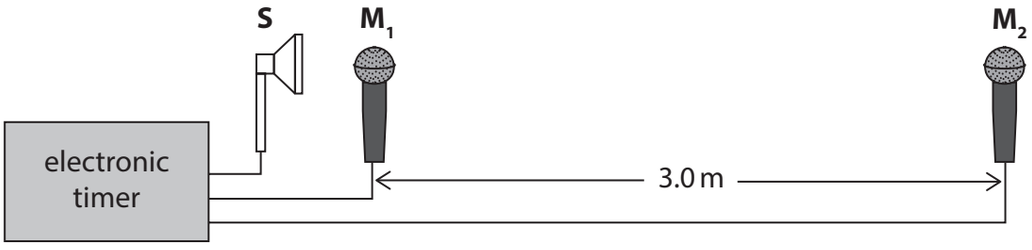


Figure 16

S is a source of sound and $\mathbf{M_1}$ and $\mathbf{M_2}$ are microphones.

S emits a short pulse of sound and, at the same time, starts the electronic timer.

The electronic timer records the times that the sound reaches $\mathbf{M_1}$ and then reaches $\mathbf{M_2}$.

Figure 17 shows the times recorded by the electronic timer.

	time in ms
sound emitted by **S**	0.0
sound detected by $\mathbf{M_1}$	2.9
sound detected by $\mathbf{M_2}$	12.0

Figure 17

(i) Calculate the time that the sound takes to travel from $\mathbf{M_1}$ to $\mathbf{M_2}$.

(1)

time = ... ms

(ii) Using data from Figure 16 and Figure 17, calculate the speed of sound in air.

(3)

speed = ... m/s

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(iii) Explain why it is better that the student uses an electronic timer rather than a stopwatch.

(2)

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.....

(c) A water wave travels at a speed of 1.2 m/s.

The wavelength of the wave is 0.30 m.

Calculate the frequency of the wave.

Use the equation

$$f = \frac{v}{\lambda}$$

(2)

frequency = ... Hz

(Total for Question 8 = 11 marks)

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9 (a) One factor that can affect the stopping distance of a vehicle travelling on a straight, horizontal road is the speed of the vehicle.

State **two other** factors that can affect the stopping distance of a vehicle travelling on a straight, horizontal road.

(2)

1 .....

2 .....

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(b) A student investigates the effect that speed has on stopping distance.

The student uses the apparatus as shown in Figure 18.

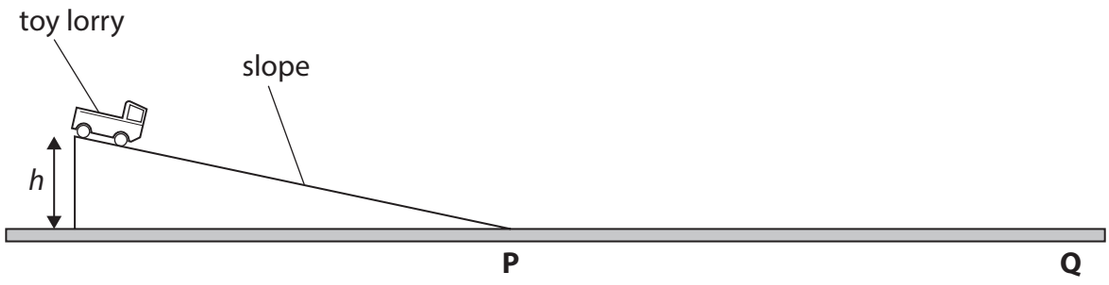


Figure 18

The lorry rolls down the slope.

The speed of the lorry is measured as the lorry passes point **P**.

The stopping distance of the lorry is measured along **PQ**.

The height, *h*, of the slope is changed to vary the speed of the lorry at **P**.

Figure 19 shows a graph of the student's results.

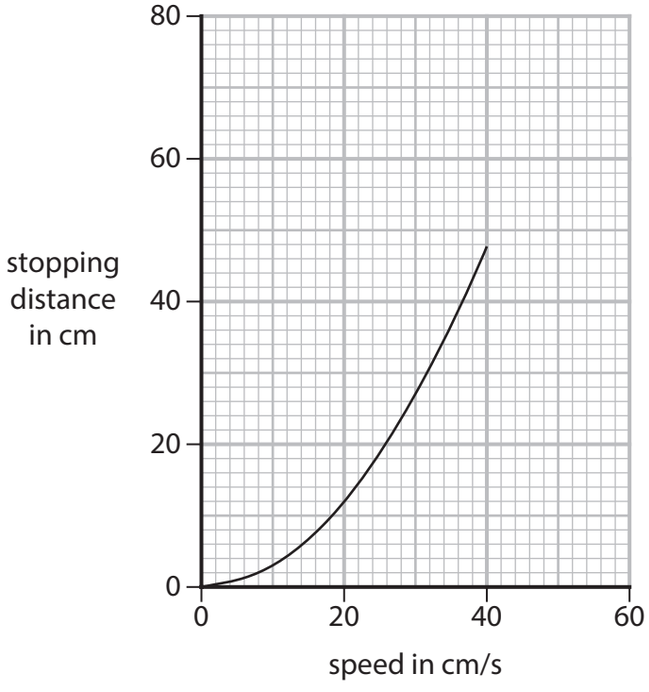


Figure 19

(i) Use the graph in Figure 19 to estimate the stopping distance for a speed of 50 cm/s.

(1)

stopping distance = ... cm

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(ii) Before starting the investigation, the student made the following prediction about the results.

> As the speed doubles, the stopping distance doubles.

Using information from the graph in Figure 19, show that the student's prediction is **not** correct.

(2)

(iii) Describe how the student could develop the investigation to determine the kinetic energy of the lorry as it passes point **P**.

(2)

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*(c) Figure 20 shows a velocity/time graph for a motorbike travelling along a straight road.

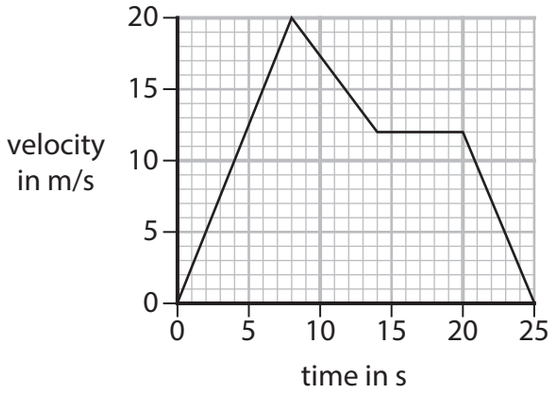


Figure 20

Using information from Figure 20, describe the changes in velocity of the motorbike during the 25 seconds shown on the graph.

Your answer should refer to

- the changes in velocity
- the times when the changes in velocity happen.

(6)

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(Total for Question 9 = 13 marks)

10 (a) (i) Which row of the table best describes a nuclear fusion reaction?

(1)

		energy change	mass of nuclei created
☒	**A**	absorption of energy	larger
☒	**B**	absorption of energy	smaller
☒	**C**	release of energy	larger
☒	**D**	release of energy	smaller

(ii) Temperatures greater than 150 million degrees celsius are needed for nuclear fusion to occur.

Explain why such high temperatures are needed.

(2)

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(b) (i) Figure 21 shows a neutron moving towards a uranium-235 nucleus. A fission reaction occurs when they meet.

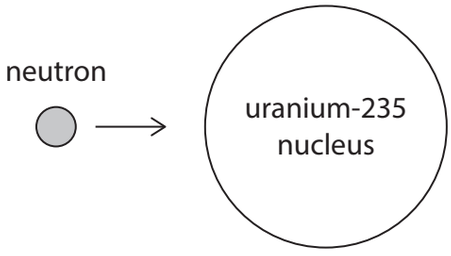


Figure 21

Describe what happens during this single fission reaction.

(2)

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(ii) Figure 22 shows a diagram of a nuclear reactor.

Complete the **three** words in the two incomplete labels.

The first letters of the missing words are given.

(2)

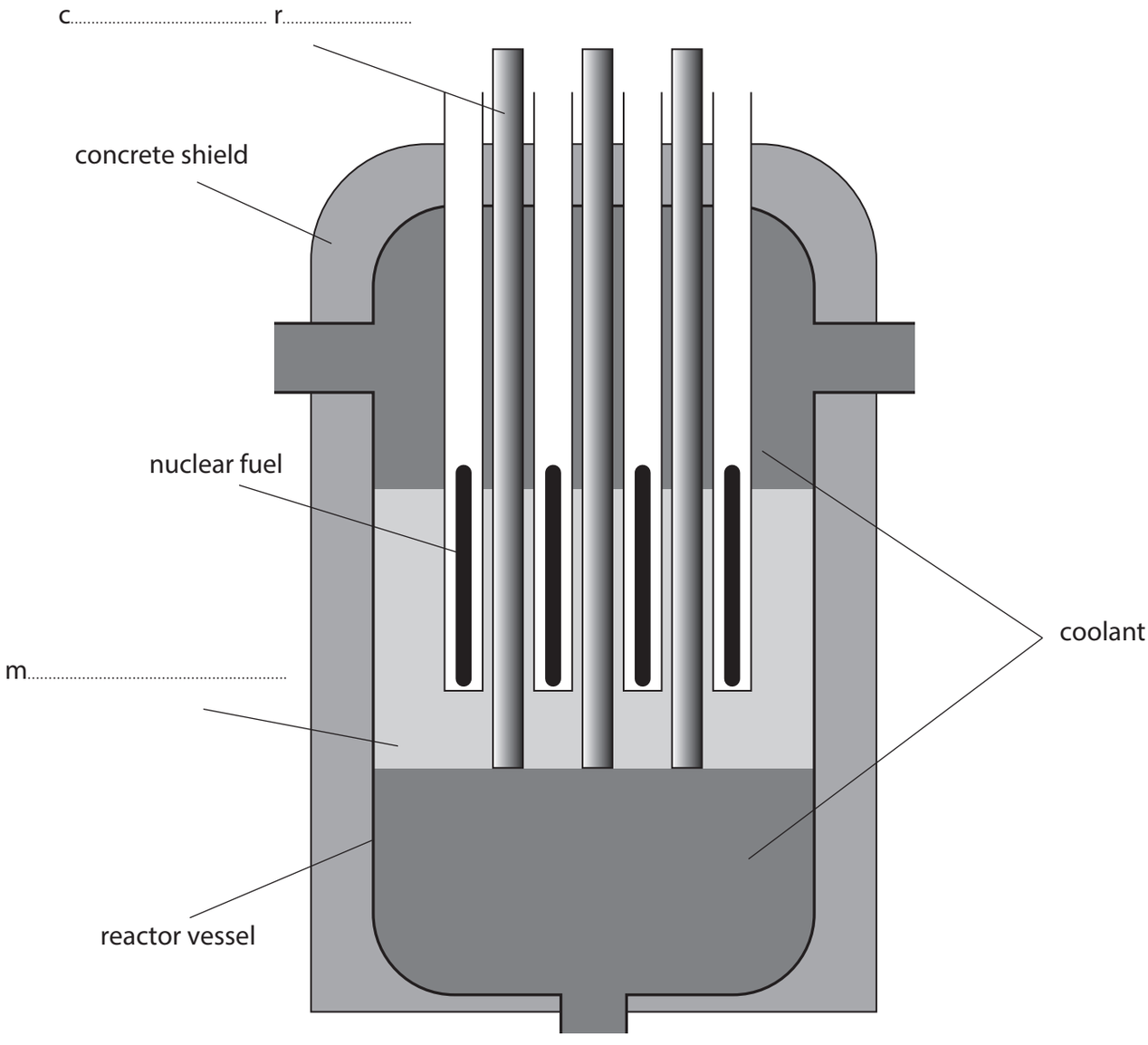


Figure 22

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(c) A class of students debates:

'There is an urgent need to increase the use of nuclear power for the benefit of human society.'

The students make lists of statements FOR and AGAINST increasing the use of nuclear power.

One example FOR and one example AGAINST are given.

Add **two more** statements to **each** list.

(4)

FOR

Increasing the use of nuclear power

1 gives more security of energy supply

2 .....

.....

3 .....

.....

AGAINST

Increasing the use of nuclear power

1 increases the risk of nuclear accidents

2 .....

.....

3 .....

.....

(Total for Question 10 = 11 marks)

TOTAL FOR PAPER = 100 MARKS

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Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Tuesday 2 June 2026

Paper reference **1PH0/1F**

Physics

PAPER 1

Foundation Tier

Equation Booklet
Do not return this Booklet with the question paper.

Turn over ▶

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If you're taking **GCSE (9–1) Combined Science** or **GCSE (9–1) Physics**, you will need these equations:

HT = higher tier

	distance travelled = average speed × time	
	acceleration = change in velocity ÷ time taken	$a = \frac{(v-u)}{t}$
	force = mass × acceleration	$F = m \times a$
	weight = mass × gravitational field strength	$W = m \times g$
HT	**momentum = mass × velocity**	$\boldsymbol{p = m \times v}$
	change in gravitational potential energy = mass × gravitational field strength × change in vertical height	$\Delta GPE = m \times g \times \Delta h$
	kinetic energy = 1/2 × mass × (speed)^2	$KE = \frac{1}{2} \times m \times v^2$
	efficiency = $\frac{(\text{useful energy transferred by the device})}{(\text{total energy supplied to the device})}$	
	wave speed = frequency × wavelength	$v = f \times \lambda$
	wave speed = distance ÷ time	$v = \frac{x}{t}$
	work done = force × distance moved in the direction of the force	$E = F \times d$
	power = work done ÷ time taken	$P = \frac{E}{t}$
	energy transferred = charge moved × potential difference	$E = Q \times V$
	charge = current × time	$Q = I \times t$
	potential difference = current × resistance	$V = I \times R$
	power = energy transferred ÷ time taken	$P = \frac{E}{t}$
	electrical power = current × potential difference	$P = I \times V$
	electrical power = (current)^2 × resistance	$P = I^2 \times R$
	density = mass ÷ volume	$\rho = \frac{m}{V}$

	force exerted on a spring = spring constant × extension	$F = k \times x$
	(final velocity)^2 – (initial velocity)^2 = 2 × acceleration × distance	$v^2 - u^2 = 2 \times a \times x$
HT	**force = change in momentum ÷ time**	$\boldsymbol{F = \frac{(mv - mu)}{t}}$
	energy transferred = current × potential difference × time	$E = I \times V \times t$
HT	**force on a conductor at right angles to a magnetic field carrying a current = magnetic flux density × current × length**	$\boldsymbol{F = B \times I \times l}$
	For transformers with 100% efficiency, potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil	$V_P \times I_P = V_S \times I_S$
	change in thermal energy = mass × specific heat capacity × change in temperature	$\Delta Q = m \times c \times \Delta\theta$
	thermal energy for a change of state = mass × specific latent heat	$Q = m \times L$
	energy transferred in stretching = 0.5 × spring constant × (extension)^2	$E = \frac{1}{2} \times k \times x^2$

If you're taking **GCSE (9–1) Physics**, you also need these extra equations:

	moment of a force = force × distance normal to the direction of the force	
	pressure = force normal to surface ÷ area of surface	$P = \frac{F}{A}$
HT	***potential difference across primary coil*** / ***potential difference across secondary coil*** = ***number of turns in primary coil*** / ***number of turns in secondary coil***	$\boldsymbol{\frac{V_p}{V_S} = \frac{N_p}{N_S}}$
	to calculate pressure or volume for gases of fixed mass at constant temperature	$P_1 \times V_1 = P_2 \times V_2$
HT	**pressure due to a column of liquid = height of column × density of liquid × gravitational field strength**	$\boldsymbol{P = h \times \rho \times g}$

END OF EQUATION LIST

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