Qualification Accredited



GCSE (9-1)

Examiners' report

GATEWAY SCIENCE PHYSICS A

J249

For first teaching in 2016

J249/01 Summer 2024 series

Contents

Introduction	4
Paper 1 series overview	5
Section A overview	7
Question 1	7
Question 7	8
Question 10	8
Question 11	9
Question 14	10
Question 15	11
Section B overview	12
Question 16 (a), (b) and (c)	12
Question 17 (a), (b), (c), (d) and (e)	14
Question 18 (a) (i)	15
Question 18 (a) (ii)	16
Question 18 (a) (iii)	16
Question 18 (b)	17
Question 18 (c)	17
Question 19 (a) (i)	18
Question 19 (a) (ii)	18
Question 19 (a) (iii)	19
Question 19 (b) (i)	19
Question 19 (b) (ii)	20
Question 19 (c)	20
Question 20 (a)	21
Question 20 (b)	22
Question 20 (c)	22
Question 21 (a) (i)	23
Question 21 (a) (ii)	23
Question 21 (b) (i)	24
Question 21 (b) (ii)	24
Question 22*	25
Question 23 (a) (i)	27
Question 23 (a) (ii)	28
Question 23 (b) (i)	28

Question 23 (b) (ii)	29
Question 24 (a) (i)	30
Question 24 (a) (ii)	31
Question 24 (a) (iii)	32
Question 24 (a) (iv)	32
Question 24 (b)	32
Question 24 (c)	33

Introduction

Our examiners' reports are produced to offer constructive feedback on candidates' performance in the examinations. They provide useful guidance for future candidates.

The reports will include a general commentary on candidates' performance, identify technical aspects examined in the questions and highlight good performance and where performance could be improved. A selection of candidate answers is also provided. The reports will also explain aspects which caused difficulty and why the difficulties arose, whether through a lack of knowledge, poor examination technique, or any other identifiable and explainable reason.

Where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

A full copy of the question paper and the mark scheme can be downloaded from OCR.

Would you prefer a Word version?

Did you know that you can save this PDF as a Word file using Acrobat Professional?

Simply click on File > Export to and select Microsoft Word

(If you have opened this PDF in your browser you will need to save it first. Simply right click anywhere on the page and select **Save as...** to save the PDF. Then open the PDF in Acrobat Professional.)

If you do not have access to Acrobat Professional there are a number of **free** applications available that will also convert PDF to Word (search for PDF to Word converter).

Paper 1 series overview

This paper is designed to assess content from Topics P1 to P4 and P9 at Foundation level.

The number of candidates taking this component in 2024 was similar to the previous year. The accessibility principles described in the resource 'Exploring our exam papers' continue to be applied. The final two questions in the component (Question 23 and Question 24) are overlap questions with the Higher tier component J249/03. Although these questions targeted higher achieving candidates, most candidates were given some marks including for attempting the graph parts of Question 24 (a) and the final part, 24 (c).

There were many more examples of numerical questions where working out was clearly shown than in previous years. This allowed the understanding of candidates who were unable to complete the calculation correctly to be credited. Candidates should be encouraged to show how they rearrange the equation and show how they substitute the data from the question into the equation as a first step.

In this paper, for Question 22, candidates had the opportunity to demonstrate their knowledge and understanding of physics by constructing their own response. It is important that candidates respond to all parts of the question set when answering this type of question.

The standard of legibility was good, with few scripts being very difficult to read. There were several examples of candidates who were offered a scribe choosing to answer all the questions themselves. In questions where an explanation is required, candidates should be encouraged to use the marks allocated and the number of lines provided as a guide to the length of their responses.

OCR support



OCR produces a resource that explains accessibility approaches in assessments.

5

Exploring Exam Papers

Candidates who did well on this paper generally:

- attempted all the questions
- showed their working in calculation questions
- read the questions carefully before answering
- answered both parts of Question 22, the Level of Response question
- were able to use standard form in calculations such as in Question 15 and Question 18 (b)
- showed familiarity with the selected activities and practical demonstrations of the practical suggestions from the specification.

Candidates who did less well on this paper generally:

- did not respond to some questions
- did not show working in calculation questions
- answered hastily, without fully understanding what the question was asking.

OCR support



OCR produces a resource that explains the practical skills that candidates are expected to experience, including a practical skills booklet and support guide for teachers.

Practical activities in J249 Physics

Section A overview

Very few of these fifteen multiple-choice questions were left blank. Questions 3, 7 and 10 were correctly answered by the majority of candidates. Questions 5, 11 and 14 were only answered correctly by the most successful candidates.

Candidates should be encouraged to write their answer clearly and unambiguously. If candidates change their mind about an answer, they should clearly cross it out and write their final choice next to the answer box. Attempting to overwrite or alter the old answer should be avoided. Marks cannot be given if the answer is unclear.

Some candidates made good use of the white space adjacent to multiple-choice questions to help organise their thoughts and for calculations.

Comments follow on six of the fifteen questions where there are points which could be of use to centres.

Que	estic	on 1	
1	Wh	ich word describes the charge on the nucleus of an atom?	
	Α	Negative	
	В	Neutral	
	С	Positive	
	D	Zero	
	You	or answer	[1]
T 1		and an area for this area time was Online C. Online D.	

The correct response for this question was Option C. Option B was commonly chosen.

7 An object has a mass of 37.5 kg and a volume of 0.15 m³.

What is the density of the object?

Use the equation: density = $\frac{\text{mass}}{\text{volume}}$

- **A** $0.0040 \, \text{kg/m}^3$
- $B = 2.5 \,\mathrm{kg/m^3}$
- **C** $5.6 \, \text{kg/m}^3$
- D 250 kg/m³

Your answer [1]

Many successful candidates used the 'white space' to calculate the density.

Question 10

10 A car travels at a constant speed. The car travels 32 km in 20 minutes.

How long does it take the car to travel 128 km?

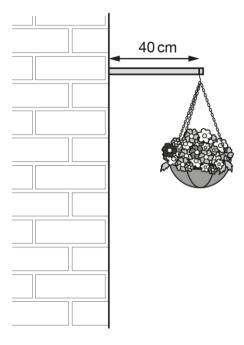
- A 60 minutes
- B 80 minutes
- C 100 minutes
- D 116 minutes

Your answer [1]

Many successful candidates used the 'white space' to write out the calculations required.

11 A basket of flowers hangs at the end of a horizontal pole attached to a vertical wall.

The basket weighs 8N and hangs from a point on the pole 40 cm away from the wall.



What is the moment of the basket about the point where the pole is attached to the wall?

Use the equation: moment of a force = force × distance

- A 3.2 N m anti-clockwise
- B 3.2 N m clockwise
- C 320 N m anti-clockwise
- D 320 N m clockwise

Your answer [1]

Many successful candidates used the 'white space' to lay out the conversion and the calculation. The correct answer was B, but many chose D as they did not convert the 40 cm to 0.4 m.

14 A cyclist starts at an initial velocity of 0.0 m/s and accelerates at 1.4 m/s² for a distance of 20 m.

What is the final velocity of the cyclist?

Use the equation: $(\text{final velocity})^2 - (\text{initial velocity})^2 = 2 \times \text{acceleration} \times \text{distance}$

- **A** 5.3 m/s
- **B** 7.5 m/s
- C 28m/s
- **D** 56 m/s

Your answer [1]

This is quite a challenging calculation for Foundation tier candidates. Many successful candidates used the space to rearrange the equation and calculate the final velocity. A common incorrect response was D; 56 is the square of the final velocity.

Exemplar 1

What is the final velocity of the cyclist?

1.4m/52 20m

Use the equation: $(\text{final velocity})^2 - (\text{initial velocity})^2 = 2 \times \text{acceleration} \times \text{distance}$

A 5.3m/s

$$(f_V)^2 = 2 \times 1.4 \times 20 + (0.0)^2$$

B 7.5 m/s

$$= \underline{56} \rightarrow \sqrt{56} = 7.5$$

C 28m/s

56 m/s

D

Your answer



[1]

The candidate used the space to organise their thoughts and come up with the correct response.

15 A molecule is made up of 10 atoms in a row.

Which measurement is a typical size for this molecule?

- **A** 1×10^{-15} m
- **B** 1×10^{-13} m
- **C** 1×10^{-11} m
- **D** 1×10^{-9} m

Your answer		[1]
-------------	--	-----

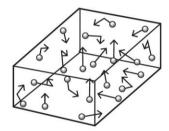
Option D is correct. Candidates who had a firm grasp of the use of standard form were able to answer this correctly.

Section B overview

Section B consisted of short 1-mark questions as well as questions requiring longer answers and a Level of Response question (Question 22). This section covered all of the assessment objectives and many of the questions required candidates to use mathematical skills. The calculation questions in this section were well answered by candidates who demonstrated familiarity with substitution into and rearranging equations. Even if subsequent calculations went astray, examiners were able to give some marks to those who wrote out their working.

Question 16 (a), (b) and (c)

- 16 This question is about how gas molecules cause pressure.
- (a) The diagram shows gas molecules exerting a pressure when they collide with the walls of a container.



Complete each sentence to explain how gas pressure changes with temperature.

Use words from the list.

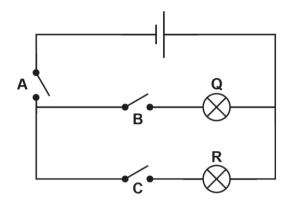
decreases	force	increases	size	speed	temperature
As the		of the gas i	ncreases the	e molecules ha	ve greater average
The gas molecule	s collide mor	e often with the wa	alls of the cor	ntainer.	
This exerts a grea	ıter		over the	same area and	I the gas pressure

(b)	Scientists often use models to help develop explanations and solve problems.		
	Which statements describe a simple model of the Earth's atmosphere?		
	Tick (✓) three boxes.		
	It covers the Earth to a height of about 700 km.		
	It covers the Earth to a height of about 700 m.		
	The atmospheric pressure decreases as you move away from the Earth's surface.		
	The density is greater as you move away from the Earth's surface.		
	The density is uniform.		
	The thickness of the atmosphere is large compared to the Earth's diameter.		[3]
(c)	Calculate the constant for a gas with a volume of 1.5 m ³ and a pressure of 5000 Pa.		[0]
	Use the equation: pressure × volume = constant		
	Constant =	Pam	³ [2]

Part (a) of this question offered a gentle introduction to Section B, and many candidates were given full marks. Part (c) was a simple calculation and was also well answered. Part (b) was less well answered, with only the most successful candidates scoring 3 marks.

Question 17 (a), (b), (c), (d) and (e)

17 A student makes a circuit using a cell, three switches and two identical filament lamps.



(a)	Which switch or switches does the student close so that only lamp Q lights up?	[41]
(b)	Which switch or switches does the student close so that only lamp R lights up?	-43
(c)	The switches are closed so that both lamp Q and lamp R light up.	
	Which sentence describes the brightness of lamp Q and lamp R ?	
	Tick (✓) one box.	
	Both lamps are the same brightness.	
	Lamp Q is brighter than lamp R .	
	Lamp R is brighter than lamp Q .	[1]
(d)	Explain your answer to (c).	[1]
		[41

[3]

(e) Complete the sentences to explain what happens to the resistance of the metal wire inside the filament lamp when the current increases.

Use words or phrases from the list.

atoms	decreases	elastic potential	electrons
increases	protons	stays the same	thermal

As the current increases, the resistance of the metal wire	
The collide more often with the positive ions in the wire.	
This increases the energy of the wire.	

Parts (a) and (b) were generally well answered by all candidates. Many candidates were able to select the correct response in part (c), but often explanations in part (d) were too vague to be credited. Part (e) was correctly answered by many candidates. The most common error was writing 'decreases' rather than 'increases' for the first space.

Question 18 (a) (i)

- 18 This question is about static electricity.
- (a)(i) Describe how a teacher charges a balloon with a cloth.

Part (a) (i) was well answered by most candidates. The process was generally well understood but weaker responses often lacked sufficient detail to be credited.

15

© OCR 2024

Question 1	18	(a) ((ii)
------------	----	-------	------

-	
(ii)	When the teacher charges the balloon, it becomes positively charged.
	Describe what happens to the charges on the balloon as the balloon becomes positively charged.
	[1]
that	(a) (ii) was well answered by medium and higher scoring candidates. Many candidates understood negative charges were being removed from the balloon, leaving it positively charged. Lower scoring lidates' answers often incorrectly suggested that positive charges moved to the balloon.
Que	estion 18 (a) (iii)
(iii)	Explain why the balloon sticks to a negatively charged rod.

Part (a) (iii) was well answered by most candidates.

Question 18 (b)

(b) Static electricity can build up in thunderclouds.

In one thundercloud the potential difference between the thundercloud and the ground is $5.0 \times 10^8 \text{ V}$.

When lightning strikes the ground, 7.5×10^9 J of energy is transferred.

Calculate the amount of charge which flows when lightning strikes.

Use the equation: energy transferred = charge × potential difference

Charge = C [3]

Question 18 (b) was a simple calculation where candidates had to rearrange and substitute into the equation given. Most middle and higher performing candidates managed full marks. Some less successful candidates, who did not complete the calculation correctly but had written out the rearranged formula and substituted into it correctly, were given 2 marks that were missed by candidates who had just written the incorrect answer.

Question 18 (c)

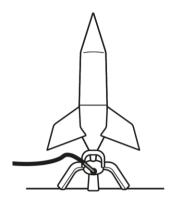
(c) Calculate the charge flow in a circuit when there is a current of 15A for 2 minutes.

Use the equation: charge flow = current × time

Question 18 (b) was a simple calculation where candidates had to convert 2 minutes into seconds and then substitute into the given formula. More successful candidates correctly converted and calculated and were given 3 marks. Many middle and lower performing candidates did not do the conversion but substituted in correctly and were given 2 marks.

Question 19 (a) (i)

19 The diagram shows a water rocket on the ground.



- (a)
- (i) The rocket is stationary on the ground.

What are the names of the upwards force and the downwards force on the rocket?

Use words from the list.

normal contact force	tension	thrust	weight
Upwards force:			
Downwards force:			

Most candidates correctly identified weight as the correct response for the downwards force, but only the most successful candidates correctly identified the upwards force as normal contact force.

Question 19 (a) (ii)

(ii)	The rocket lifts off the ground	d when water is pus	shed out of the	bottom of the rocket.
------	---------------------------------	---------------------	-----------------	-----------------------

Explain how Newton's third law applies to the rocket as it lifts off the ground.

Use ideas about the force of the water and the force of the rocket.

Question 19 (a) (ii) was generally poorly answered. Only the highest performing candidates were able to explain Newton's third law with reference to the two forces given in the question. High performing candidates who wrote Newton's third law as 'For every action there is an equal and opposite reaction', but did not correctly explain how it applied in the context of the question, were given a mark for this correct recall.

Exemplar 2

Exe	mplar 2
Use	tideas about the force of the water and the force of the rocket. The force the the vocket is applying equally to booke of the nature but opposite ways.
4	o lovce of the natur but opposite ways.
,,,,,	[2]
	candidate correctly identified that the force of the rocket and the force of the water are equal and in osite directions, and so achieved 2 marks.
Que	estion 19 (a) (iii)
(iii)	Describe the conditions needed for the rocket to accelerate upwards.
	Use ideas about the upwards force and the downwards force.
	[1]
Que	stion 19 (a) (iii) was generally well answered by most candidates.
	estion 19 (b) (i)
(b) (i)	The rocket has a mass of 5.0 kg and rises a vertical distance of 45 m.
	Calculate the gravitational potential energy gained by the rocket.
	Use the equation: gravitational potential energy = mass × gravitational field strength × height
	Gravitational field strength = 10 N/kg
	Gravitational potential energy =

Question 19 (b) (i) was a simple substitution into the given formula and most candidates generally answered well.

Question 19 (b) (ii)

(ii) A	different water	rocket does	12500J	of work in 5	seconds	when it rises	upwards.
--------	-----------------	-------------	--------	--------------	---------	---------------	----------

Calculate the power of this water rocket.

Use the equation: power = $\frac{\text{work done}}{\text{time}}$

Include the correct unit.

Power = Unit [3]

This was another simple substitution into the given formula, which most candidates generally answered well, although only the higher performing candidates scored the third mark for the unit.

Question 19 (c)

(c) A student writes a summary about gravitational fields.

The student has made **two** mistakes in their summary.

Gravitational Fields

All matter has a gravitational field.

Gravitational fields cause repulsion.

More massive objects have a smaller gravitational field strength.

Identify the **two** mistakes and write down the correct word for each mistake.

Mistake 1:

Correct word 1:

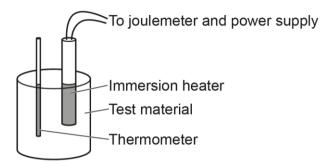
Mistake 2:

Some candidates wrote out the whole of the statements containing a mistake and the whole of a corrected statement with the mistake corrected. Others just wrote the incorrect words and the correct replacements. The question proved to be accessible to candidates across the grade range. Although many of the less successful candidates correctly identified 'repulsion' in the second statement as incorrect, the correction of 'attraction' was less often seen from these candidates.

Question 20 (a)

20 A scientist investigates the specific heat capacity of different solid materials.

The diagram shows the equipment the scientist uses.



(a) The scientist wants to get more accurate values for the specific heat capacities of the different materials.

Suggest one thing the scientist can do to improve the set-up of their equipment.

Give a reason for your answer.

Suggestion			
	 	•••••	
Reason	 		
			[2]

Question 20 (a) was generally well answered by the more successful candidates. A common misunderstanding of the diagram was to assume it was of a beaker, and to suggest placing a lid on the apparatus. Candidates who had seen the experiment performed might be less prone to this type of error.

Question 20 (b)

(b) The table shows the results for the materials.

Material	Specific heat capacity (J/kg°C)
aluminium	900
concrete	1000
copper	385
iron	450

State and explain which material the saucepan is made from.

A chef buys a saucepan made from the material in the table which will increase in temperature the most quickly when it is heated.

Material	
Explanation	
	[21

Question 20 (b) was well answered by most candidates, identifying copper as the material and giving the explanation that it had the lowest specific heat capacity of those in the table.

Question 20 (c)

(c)	Complete the sentence to explain the meaning of specific latent heat of vaporisation.
	Specific latent heat of vaporisation is the energy transferred when
	[2]

Many candidates were given 1 mark for writing about a change in state between liquid and gas, but few mentioned that 1 kg of material was changed.

Question 21 ((a)) ((i)	
---------------	-----	-----	-----	--

21

(a) A teacher fills up a plastic bottle with water.The teacher makes a small hole in the side of the bottle so that the water flows out.

(i) At what angle to the side of the bottle does the water flow out?

Question 21 (a) (i) was answered correctly by all but the least successful candidates.

Question 21 (a) (ii)

(ii)	Explain why the water flows out of the bottle at this angle.
	[1]

Very few candidates were able to answer this question correctly.

Question 21	(h)) ((i)	١
QUOSIION Z I	(\mathbf{v})	, ,	ш	,

- (b) A force of 1.8 N acts on a 0.12 m² area of ground.
- (i) Calculate the pressure exerted on the ground.

Use the Equation Sheet.

Pressure =Pa [3]

Most higher and medium performing candidates were able to answer this correctly. Candidates who wrote down the formula and correctly substituted into it were credited for this. A few candidates mistakenly squared the 0.12 m² as part of their calculation.

Question 21 (b) (ii)

(ii) The force is kept constant and the area the force acts on is halved.

What happens to the pressure exerted on the ground?

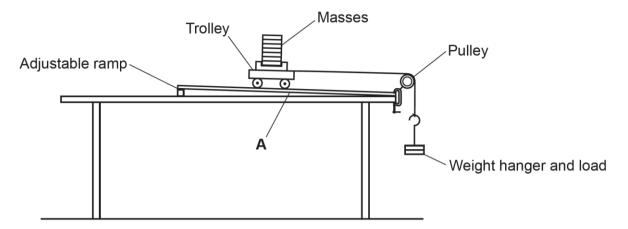
______[1]

Question 21 (b) (ii) was generally well answered.

Question 22*

22* A student does an experiment to investigate how the resultant force on an object affects the acceleration of the object (Newton's second law).

The diagram shows some of the equipment the student uses.



This is their method:

- Release the trolley from position A on the ramp.
- Measure the acceleration using light gates and a data logger (not shown in the diagram).
- Repeat for three different loads by moving masses from the trolley to the weight hanger.

These are their results:

Load (N)	Acceleration (m/s²)
2	1.5
4	3.12
8	6

Describe the trend shown by the student's results.

results.		, p
	 	[6]

Suggest how the student could improve their method to obtain more accurate and precise

Question 22 was a relatively straightforward Level of Response question for most Foundation tier candidates, and many were able to give a creditworthy response.

In common with Level of Response questions from the past, there were two parts to the question. In this case, a trend and suggestions for improving accuracy. Many candidates chose to focus on just one of the parts, which restricted their overall level. There were good examples of high-level responses to both parts of the question, but only rarely were these seen together on the same script.

Exemplar 3

From the results we can see that when the load increases so does the acceleration. It is a directly propositional relationship between the load and the acceleration.

In order to obtain more accurate and prease results that they need to use more than three loads.

This will mean that any then a visible will be even chearen to see wire more results.

Thus also need to repeat the experiment multiple times with different loads not just once in order to make the experiment more precise.

They could also make the loads go up more frequently rather than 2, 48 year could have, 1, 2, 3, 4, 5. [6]

Finally you could have offer beoper repeat the experiment. This will ensure that you have the most accurate and precise results.

In Exemplar 3, the candidate gives a clear trend when they state that when the load (on the weight hanger) increases, so does the acceleration, and that this is a directly proportional relationship.

The candidate goes on to suggest several improvements which will increase accuracy and precision in a clear and logically structured way.

This response is at Level 3 and was given 5 marks, rather than 6 as some information relevant to this level is not presented and substantiated.

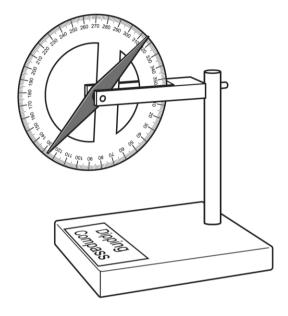
Question 23 (a) (i)

23

(a) Fig. 23.1 shows a (dipping) compass used in schools.

It is currently showing the reading for the UK.

Fig. 23.1



(i)	Describe how the position of the needle changes if the compass is moved from the equator t poles of the Earth.	o the
		[2]

Question 23 is the first of the overlap questions found on both the Higher and Foundation papers.

Question 23 (a) (i) was not well answered by many Foundation tier candidates and the dipping compass was often confused with a direction-finding compass.

Question	23 ((a) ((ii)	
----------	------	-------	------	--

(ii) What does your answer to (a)(i) suggest about the Earth's core?

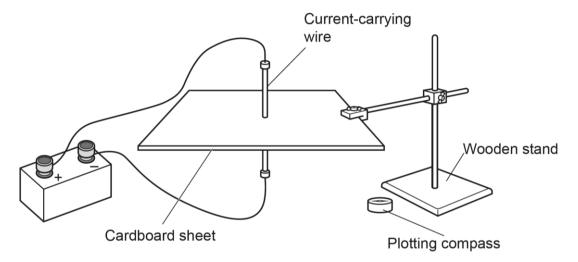
[1]

Question 23 (a) (ii) was answered correctly by all but the least successful candidates.

Question 23 (b) (i)

(b) Fig. 23.2 shows the equipment a teacher sets up to demonstrate using a plotting compass to investigate the magnetic field around a current-carrying wire.

Fig. 23.2



(i)	Describe how the teacher uses this equipment to show the shape of the magnetic field around the current-carrying wire.
	[3]

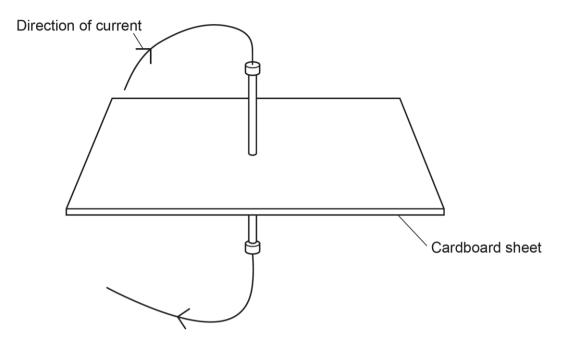
Question 23 (b) (i) was well answered by candidates who were able to recall the demonstration to show the magnetic field of a wire.

[2]

Question 23 (b) (ii)

(ii) On Fig. 23.3 sketch the magnetic field around the current carrying wire.

Fig. 23.3



Higher performing Foundation tier candidates answered Question 23 (b) (ii) well. Almost all candidates who drew circles around the current carrying wire put arrows showing the direction of the field correctly, and a few even mentioned the right-hand grip rule.

Question 24 (a) (i)

24 An engineer investigates the properties of a spring.

This is their method:

- Carefully add different loads to the spring.
- · Measure the extension of the spring for each load.
- · Repeat the experiment three times for each load.

The table shows the engineer's results.

Lood (N)	Extension (cm)													
Load (N)	Test 1	Test 2	Test 3	Mean										
100	2.1	2.2	2.2											
200	4.2	4.2	4.2	4.2										
300	6.3	6.5	6.4	6.4										
400	8.6	8.6	8.6	8.6										
500	10.6	10.4	10.8	10.6										

(a)

(i) Calculate the missing value of the mean extension for a load of 100 N to a suitable degree of accuracy.

Mean =	cm	Г1	1

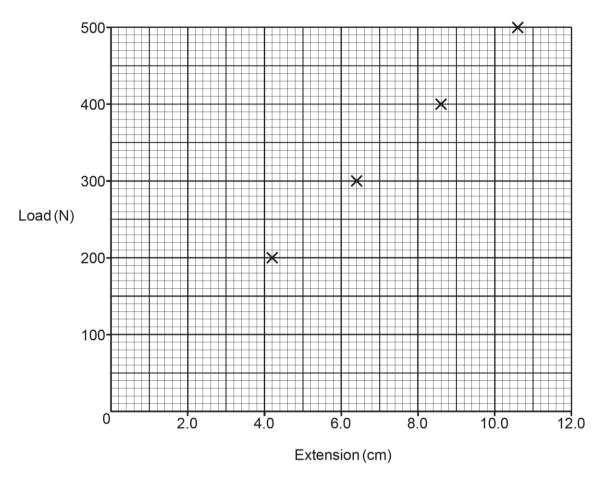
Question 24 is the second of the overlap questions found on both the Higher and Foundation papers.

Question 24 (a) (i) was correctly answered by the majority of Foundation tier candidates. The most common errors were incorrect rounding to give either 2.16 or 2.16.

Question 24 (a) (ii)

(ii) Plot the missing value on the graph for a load of 100 N.

Draw a line of best fit.



[2]

Question 24 (a) (ii) was a straightforward graph plot and line of best fit. Almost all Foundation tier candidates used a ruler and pencil to answer this question correctly. The most common error was to misread the x-axis when plotting.

QUUSION LT (a) (III)	Question	24 ((a) ((iii)
----------------------	----------	------	-------	-------

	(iii)	Calculate the	gradient of the gra	aph. Show your	workings on th	ne graph
--	-------	---------------	---------------------	----------------	----------------	----------

Gradient = N/cm [2]

Question 24 (a) (iii) was quite challenging for many Foundation tier candidates and only the higher performing candidates answered correctly. There were some creditable attempts at drawing a triangle to calculate the gradient, although frequently these were too small to give an accurate answer. Some candidates realised that, as the line of best fit went through the origin, they could use the coordinates of any point lying directly on the line to correctly calculate the gradient.

Question 24 (a) (iv)

(iv) Use your answer to (a)(iii) to determine the spring constant for the spring.

Question 24 (a) (iv) tested if the candidates understood that the gradient of a load / extension graph was the spring constant. If they had given an incorrect answer for the gradient in Question 24 (a) (iii) and then wrote the same answer as the spring constant in Question 24 (a) (iv), they were given the mark.

Question 24 (b)

(b) When the engineer repeats the experiment, they use the same method and the same equipment.

The engineer says the results show that the experiment is reproducible.

Suggest **two** reasons why the engineer is **incorrect**.

1				 			 		 			 		 	 													 			 		 					
•••	• • • •	• • • •	••••	 ••••	••••	•••	 	•••	 	• • • •	• • •	 • • • •	• • • •	 	 • • • •	• • •	• • •	•••	•••	• • • •	•••	•••	• • •	•••	•••	• • •	• • •	 •••	•••	• • • •	 •••	••••	 •••	• • • • •	•••	••••	• • • •	• • • • •
2				 			 		 			 		 	 													 			 		 					

Question 24 (b) was answered correctly by very few Foundation tier candidates. Almost all candidates who answered this question confused 'reproducible' with 'repeatable'.

[2]

Question 24 (c)

		[2]
	Precaution	
	Hazard	
c)	Identify one possible hazard for this experiment and the precaution the engineer should take.	

Question 24 (c) was answered well by most candidates.

Supporting you

Teach Cambridge

Make sure you visit our secure website <u>Teach Cambridge</u> to find the full range of resources and support for the subjects you teach. This includes secure materials such as set assignments and exemplars, online and on-demand training.

Don't have access? If your school or college teaches any OCR qualifications, please contact your exams officer. You can <u>forward them this link</u> to help get you started.

Reviews of marking

If any of your students' results are not as expected, you may wish to consider one of our post-results services. For full information about the options available visit the OCR website.

Access to Scripts

We've made it easier for Exams Officers to download copies of your candidates' completed papers or 'scripts'. Your centre can use these scripts to decide whether to request a review of marking and to support teaching and learning.

Our free, on-demand service, Access to Scripts is available via our single sign-on service, My Cambridge. Step-by-step instructions are on our website.

Keep up-to-date

We send a monthly bulletin to tell you about important updates. You can also sign up for your subject specific updates. If you haven't already, sign up here.

OCR Professional Development

Attend one of our popular professional development courses to hear directly from a senior assessor or drop in to a Q&A session. Most of our courses are delivered live via an online platform, so you can attend from any location.

Please find details for all our courses for your subject on **Teach Cambridge**. You'll also find links to our online courses on NEA marking and support.

Signed up for ExamBuilder?

ExamBuilder is a free test-building platform, providing unlimited users exclusively for staff at OCR centres with an **Interchange** account.

Choose from a large bank of questions to build personalised tests and custom mark schemes, with the option to add custom cover pages to simulate real examinations. You can also edit and download complete past papers.

Find out more.

Active Results

Review students' exam performance with our free online results analysis tool. It is available for all GCSEs, AS and A Levels and Cambridge Nationals (examined units only).

Find out more.

You will need an Interchange account to access our digital products. If you do not have an Interchange account please contact your centre administrator (usually the Exams Officer) to request a username, or nominate an existing Interchange user in your department.

Need to get in touch?

If you ever have any questions about OCR qualifications or services (including administration, logistics and teaching) please feel free to get in touch with our customer support centre.

Call us on

01223 553998

Alternatively, you can email us on **support@ocr.org.uk**

For more information visit

- □ ocr.org.uk/qualifications/resource-finder
- ocr.org.uk
- **6** facebook.com/ocrexams
- **y** twitter.com/ocrexams
- instagram.com/ocrexaminations
- inkedin.com/company/ocr
- youtube.com/ocrexams

We really value your feedback

Click to send us an autogenerated email about this resource. Add comments if you want to. Let us know how we can improve this resource or what else you need. Your email address will not be used or shared for any marketing purposes.





Please note – web links are correct at date of publication but other websites may change over time. If you have any problems with a link you may want to navigate to that organisation's website for a direct search.



OCR is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored. © OCR 2024 Oxford Cambridge and RSA Examinations is a Company Limited by Guarantee. Registered in England. Registered office The Triangle Building, Shaftesbury Road, Cambridge, CB2 8EA. Registered company number 3484466. OCR is an exempt charity.

OCR operates academic and vocational qualifications regulated by Ofqual, Qualifications Wales and CCEA as listed in their qualifications registers including A Levels, GCSEs, Cambridge Technicals and Cambridge Nationals.

OCR provides resources to help you deliver our qualifications. These resources do not represent any particular teaching method we expect you to use. We update our resources regularly and aim to make sure content is accurate but please check the OCR website so that you have the most up to date version. OCR cannot be held responsible for any errors or omissions in these resources.

Though we make every effort to check our resources, there may be contradictions between published support and the specification, so it is important that you always use information in the latest specification. We indicate any specification changes within the document itself, change the version number and provide a summary of the changes. If you do notice a discrepancy between the specification and a resource, please contact us.

You can copy and distribute this resource in your centre, in line with any specific restrictions detailed in the resource. Resources intended for teacher use should not be shared with students. Resources should not be published on social media platforms or other websites.

OCR acknowledges the use of the following content: N/A

Whether you already offer OCR qualifications, are new to OCR or are thinking about switching, you can request more information using our Expression of Interest form.

Please get in touch if you want to discuss the accessibility of resources we offer to support you in delivering our qualifications.