

AS Level Physics A

H156/01 Breadth in Physics

Question Set 1 – Module 2 MCQ

- 1 Two resistors of resistances $120\ \Omega$ and $500\ \Omega$ are connected in **parallel**. The percentage uncertainty in the value of resistance of each resistor is 10%.

What is the correct value of the total resistance and the percentage uncertainty?

- A $97\ \Omega \pm 10\%$
- B $97\ \Omega \pm 20\%$
- C $620\ \Omega \pm 0\%$
- D $620\ \Omega \pm 20\%$

Your answer

[1]

- 2 Which is **not** an International System (S.I.) base unit?

- A second (s)
- B kelvin (K)
- C kilogram (kg)
- D coulomb (C)

Your answer

[1]

- 3 An object experiences two forces, $3.0\ \text{N}$ and $4.0\ \text{N}$, in the same plane. The directions of the forces are not known.

What is the magnitude of the resultant force F acting on the object?

- A $F = 5.0\ \text{N}$
- B $F = 7.0\ \text{N}$
- C $1.0\ \text{N} \leq F \leq 7.0\ \text{N}$
- D $4.0\ \text{N} \leq F \leq 7.0\ \text{N}$

Your answer

[1]

4 Which definition is correct and uses only quantities rather than units?

- A Acceleration is the change in velocity per second.
- B Resistance is potential difference per ampere.
- C Intensity is energy per unit cross-sectional area.
- D Electromotive force is energy transferred per unit charge.

Your answer

[1]

5 A student determines the power P dissipated in a resistor. The measured values of the current I in the resistor and the resistance R of the resistor are:

$$I = (4.0 \pm 0.2) \text{ A and } R = (3.0 \pm 0.3) \Omega$$

The equation $P = I^2R$ is used to calculate P .
What is the percentage uncertainty in the value of P ?

- A 15%
- B 20%
- C 25%
- D 30%

Your answer

[1]

6 What are the correct base units for work done or energy?

- A kgm
- B kgms^{-2}
- C $\text{kgm}^2\text{s}^{-1}$
- D $\text{kgm}^2\text{s}^{-2}$

Your answer

[1]

7 The table below shows four physical quantities and their units.

Which row is correct?

	Physical quantity	Unit
A	strain	pascal
B	charge	coulomb
C	power	joule
D	force constant	newton

Your answer

[1]

8 Four students each carry out an experiment to determine the acceleration of free fall g .

Which is the **least** accurate value?

A $(9.0 \pm 1.0) \text{ms}^{-2}$

B $(9.5 \pm 0.1) \text{ms}^{-2}$

C $(9.6 \pm 0.4) \text{ms}^{-2}$

D $(9.7 \pm 0.2) \text{ms}^{-2}$

Your answer

[1]

- 9 Two forces act in the plane of this paper.
The magnitude and direction of the two forces are shown below.



The two forces are added together.

Which diagram shows the correct resultant?



Your answer

[1]

- 10 Power has base units $\text{kg m}^2 \text{s}^{-3}$.

What are the base units for intensity?

- A kg s^{-3}
B kg ms^{-3}
C $\text{kg m}^2 \text{s}^{-3}$
D $\text{kg m}^4 \text{s}^{-3}$

Your answer

[1]

Total Marks for Question Set 1: 10

OCR

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the