

## 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 <b>parallel</b> . 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?				
	Α	$97 \Omega \pm 10\%$			
	В	97 $\Omega \pm 20\%$			
	С	$620\Omega\pm0\%$			
	D	$620\Omega\pm20\%$			
	Υοι	uranswer	[1]		
2	Wh	ich is <b>not</b> an International System (S.I.) base unit?			
	Α	second (s)			
	В	kelvin (K)			
	С	kilogram (kg)			
	D	coulomb (C)			
	Υοι	ıranswer	[1]		
3		An object experiences two forces, 3.0 N and 4.0 N, in the same plane. The directions of the forces are not known.			
	Wh	at is the magnitude of the resultant force F acting on the object?			
	Α	F = 5.0 N			
	В	$F = 7.0 \mathrm{N}$			
	С	$1.0 \mathrm{N} \leqslant F \leqslant 7.0 \mathrm{N}$			
	D	$4.0 \mathrm{N} \leqslant F \leqslant 7.0 \mathrm{N}$			
	Υοι	Your answer [1			

4	Which definition is correct and uses only quantities rather than units?		
	Α	Acceleration is the change in velocity per second.	
	В	Resistance is potential difference per ampere.	
	С	Intensity is energy per unit cross-sectional area.	
	D	Electromotive force is energy transferred per unit charge.	
	You	uranswer	[1]
<b>5</b> A student determines the power <i>P</i> dissipated in a resistor. The measured values of the cuthe resistor and the resistance <i>R</i> of the resistor are:			Iin
		$I$ = (4.0 $\pm$ 0.2) 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 $P$ ?			
	Α	15%	
	В	20%	
	С	25%	
	D	30%	
	You	uranswer	[1]
6	Wh	at are the correct base units for work done or energy?	
	Α	kgm	
	В	$kg m s^{-2}$	
	С	$kg m^2 s^{-1}$	
	<b>D</b> You	kg m <sup>2</sup> s <sup>-2</sup> ur answer	[1]

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

Which row is correct?

	Physical quantity	Unit
Α	strain	pascal
В	charge	coulomb
С	power	joule
D	force constant	newton

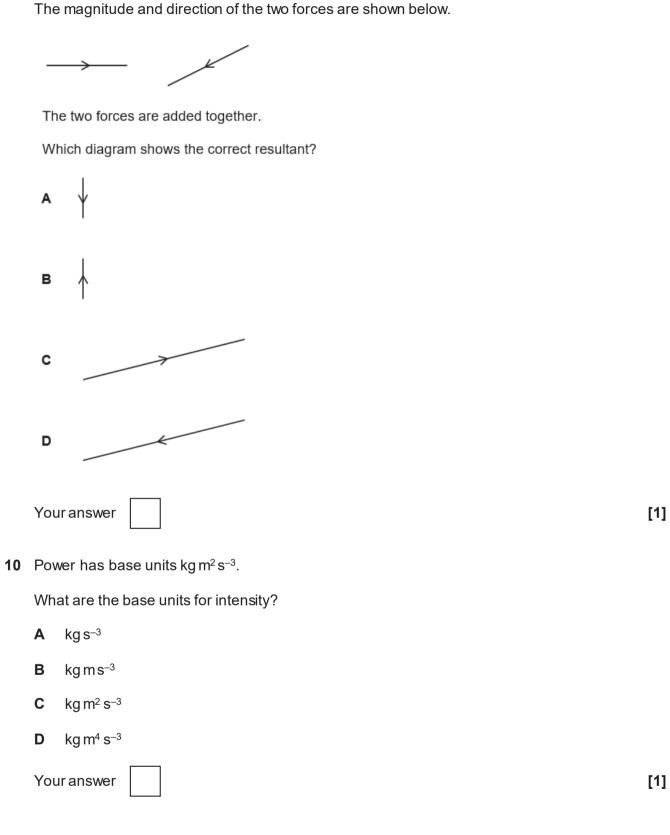
Youranswer		[1]
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8 Four students each carry out an experiment to determine the acceleration of free fall *g*.

Which is the **least** accurate value?

- **A**  $(9.0 \pm 1.0) \,\mathrm{m}\,\mathrm{s}^{-2}$
- **B**  $(9.5 \pm 0.1) \,\mathrm{m}\,\mathrm{s}^{-2}$
- **C**  $(9.6 \pm 0.4) \,\mathrm{m}\,\mathrm{s}^{-2}$
- **D**  $(9.7 \pm 0.2) \,\mathrm{m}\,\mathrm{s}^{-2}$

V	,
Youranswer	[ L'.



## **Total Marks for Question Set 1: 10**

9

Two forces act in the plane of this paper.



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