

# Use of SI Units; Prefixes

## Question Paper

<b>Level</b>	A Level
<b>Subject</b>	Physics
<b>Exam Board</b>	AQA
<b>Topic</b>	Measurements and their errors
<b>Sub Topic</b>	Use of SI units; prefixes
<b>Booklet</b>	Question Paper
<b>Paper type</b>	Multiple choice

**Time Allowed:** 15 minutes

**Score:** /12

**Percentage:** /100

**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	77.5%	70%	62.5%	57.5%	45%	<45%

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**Q1.** In which of the following do both quantities have the same unit?

- A Electrical resistivity and electrical resistance.
- B Work function Planck constant
- C Pressure and the Young modulus.
- D Acceleration and rate of change of momentum.

(Total 1 mark)

**Q2.** Which of the following is **not** a unit of power?

- A  $\text{N m s}^{-1}$
- B  $\text{kg m}^2 \text{s}^{-3}$
- C  $\text{J s}^{-1}$
- D  $\text{kg m}^{-1} \text{s}^{-1}$

(Total 1 mark)

Q3. Which of the following gives a correct unit for  $\left(\frac{g^2}{G}\right)$ ?

A N

B N kg<sup>-1</sup>

C N m

D N m<sup>-2</sup>

(Total 1 mark)

Q4. Which one of the following is a possible unit of impulse?

A N s<sup>-1</sup>

B kg ms<sup>-1</sup>

C kg ms<sup>-2</sup>

D sN<sup>-1</sup>

(Total 1 mark)

Q5. Which one of the following gives a correct unit for  $\left(\frac{\text{kg}}{\text{G}}\right)^2$ ?

- A  $\text{N m}^{-2}$
- B  $\text{N kg}^{-1}$
- C  $\text{N m}$
- D  $\text{N}$

(Total 1 mark)

Q6. Which one of the following **cannot** be used as a unit for electric field strength?

- A  $\text{J m}^{-1} \text{C}^{-1}$
- B  $\text{J A}^{-1} \text{s}^{-1} \text{m}^{-1}$
- C  $\text{N A}^{-1} \text{s}^{-1}$
- D  $\text{J C m}^{-1}$

(Total 1 mark)

Q7. Which of the following is a possible unit for rate of change of momentum?

- A  $\text{N s}$
- B  $\text{N s}^{-1}$
- C  $\text{kg ms}^{-1}$
- D  $\text{kg ms}^{-2}$

(Total 1 mark)

**Q8.** Which one of the following could be a unit of gravitational potential?

- A** N
- B** J
- C**  $\text{N kg}^{-1}$
- D**  $\text{J kg}^{-1}$

**(Total 1 mark)**

**Q9.** In parts (i) and (ii) circle the letter that corresponds to the correct answer.

(i) The resistance of a negative temperature coefficient (ntc) thermistor

- A** increases as temperature increases.
- B** is constant at temperatures below  $0\text{ }^{\circ}\text{C}$ .
- C** increases as temperature decreases.
- D** falls to zero when a critical temperature is reached.

**(1)**

(ii) The unit of potential difference can be expressed as

- A**  $\text{C s}^{-1}$
- B**  $\text{J C}^{-1}$
- C**  $\text{V A}^{-1}$
- D**  $\text{J A}^{-1}$

**(1)**

**(Total 2 marks)**

**Q10.** The fission of one nucleus of uranium 235 releases 200 MeV of energy. What is the value of this energy in J?

- A**  $3.2 \times 10^{-25}$  J
- B**  $3.2 \times 10^{-17}$  J
- C**  $3.2 \times 10^{-11}$  J
- D**  $2.0 \times 10^6$  J

**(Total 1 mark)**

**Q11.** Which line, **A** to **D**, gives correct units for both magnetic flux and magnetic flux density?

	magnetic flux	magnetic flux density
<b>A</b>	$\text{Wb m}^{-2}$	Wb
<b>B</b>	Wb	T
<b>C</b>	$\text{Wb m}^{-2}$	$\text{T m}^{-2}$
<b>D</b>	$\text{T m}^{-2}$	$\text{Wb m}^{-2}$

**(Total 1 mark)**

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**M1.C** [1]

**M2.D** [1]

**M3.D** [1]

**M4.B** [1]

**M5.A** [1]

**M6. D** [1]

**M7. D** [1]

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**M8.** D

[1]

**M9.** (i) C

B1

1

(ii) B

B1

1

[2]

**M10.C**

[1]

**M11.B**

[1]