ENGLAND GCSE PHYSICS OCR TWENTY FIRST CENTURY HIGHER · UNIT 1 · 25 QUESTIONS

Radiation and Waves — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **Glass marbles in a tray are used as a model for particles in a solid. What do the marbles show?**

- A particles move freely through space
- B particles are far apart from each other
- C particles flow past each other easily
- D particles vibrate in fixed positions

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2 **A cup of coffee is hot. How is energy transferred to the air?**

- A by evaporation only, from the top
- B by radiation only, from the surface
- C by condensation on the cold cup
- D by conduction and convection

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3 **A guitar string vibrates to make a sound. What type of wave is the sound wave?**

- A transverse
- B electromagnetic
- C standing
- D longitudinal

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4 **A thermometer is placed in hot water. What happens to the liquid inside the thermometer?**

- A it contracts
- B it expands
- C it evaporates
- D it freezes

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5 **A sunflower turns its head to follow the Sun. What is this a response to?**

- A gravity
- B light
- C water
- D touch

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6 **Hardcover books are stacked on a table. What force pulls them down?**

- A tension
- B gravity
- C friction
- D air resistance

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7 **Carbon dioxide levels rose from 280 ppm to 420 ppm. What is the increase?**

A 160 ppm

B 180 ppm

C 120 ppm

D 140 ppm

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8 **Which of these has the highest frequency?**

A radio waves

B infrared

C gamma rays

D microwaves

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9 **A wave has a frequency of 20 Hz and a wavelength of 2 m. What is the wave speed?**

- A 80 m/s
- B 40 m/s
- C 20 m/s
- D 45 m/s

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10 **Which type of radiation is stopped by aluminium?**

- A gamma
- B alpha
- C beta
- D neutron

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11 **Which electromagnetic wave has the highest frequency?**

A radio waves, which are the lowest

B gamma rays

C infrared

D microwaves

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12 **Why is alpha used in smoke alarms?**

A it is very penetrating

B it is stopped by smoke

C it is not ionising

D it has a long half-life

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13 **What happens to the focal length if a convex lens is made more curved?**

A it gets longer

B it becomes zero

C it stays the same

D it gets shorter

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14 **What does sound need to travel through?**

A air only

B a vacuum

C a medium

D water only

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15 **A wave has a frequency of 10 Hz and a wavelength of 5 m. What is its speed?**

- **A** 100 m/s
- **B** 50 m/s
- **C** 15 m/s
- **D** 25 m/s

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16 **A wave travels at 30 m/s with a wavelength of 5 m. What is its frequency?**

- **A** 6 Hz
- **B** 12 Hz
- **C** 150 Hz
- **D** 3 Hz

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17 **What are ultrasound waves?**

A sound waves below human hearing

B sound above human hearing

C light waves

D radio waves

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18 **What is the normal in a refraction question?**

A a line along the surface

B at right angles to the surface

C the edge of the block

D the ray of light itself, in the glass

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19 **What is the unit of frequency?**

A the second

B the joule

C the hertz

D the metre

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20 **Which type of radiation is used to cook food?**

A gamma rays

B X-rays

C ultraviolet

D microwaves

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21 **A wave has a frequency of 2 Hz and a wavelength of 4 m. What is the wave speed?**

- A 16 m/s
- B 4 m/s
- C 8 m/s
- D 13 m/s

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22 **What do all electromagnetic waves travel at in a vacuum?**

- A the speed of light
- B zero speed
- C the speed of sound
- D different speeds

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23 **What does a convex lens do to parallel rays of light?**

- A it stops them
- B they meet at a focus
- C it reflects them back
- D it spreads them apart

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24 **A wave has a frequency of 4 Hz and a wavelength of 10 m. What is its speed?**

- A 40 m/s
- B 14 m/s
- C 80 m/s
- D 20 m/s

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25 **What is total internal reflection used for?**

A making sound louder

B heating water

C in optical fibres

D making mirrors

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ANSWER KEY

1.	D	**10.**	C	**19.**	C
2.	D	**11.**	B	**20.**	D
3.	D	**12.**	B	**21.**	C
4.	B	**13.**	D	**22.**	A
5.	B	**14.**	C	**23.**	B
6.	B	**15.**	B	**24.**	A
7.	D	**16.**	A	**25.**	C
8.	C	**17.**	B		
9.	B	**18.**	B		

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