CONNECTICUT PHYSICS · UNIT 4 · 25 QUESTIONS

Light and Modern Physics — 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 **A light wave has wavelength 3 units and frequency 1 units in a model where speed equals wavelength times frequency. The speed is**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **A light wave has wavelength 1 units and frequency 3 units in a model where speed equals wavelength times frequency. The speed is**

ANSWER _____

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3 **A light wave has wavelength 6 units and frequency 1 units in a model where speed equals wavelength times frequency. The speed is**

ANSWER _____

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4 **A light wave has wavelength 2 units and frequency 3 units in a model where speed equals wavelength times frequency. The speed is**

ANSWER _____

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5 **A light wave has wavelength 3 units and frequency 2 units in a model where speed equals wavelength times frequency. The speed is**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **If the frequency of light doubles from 2 units to 4 units, and photon energy is proportional to frequency, the energy factor is**

ANSWER _____

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7 **If the frequency of light doubles from 3 units to 6 units, and photon energy is proportional to frequency, the energy factor is**

ANSWER _____

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8 **If the frequency of light doubles from 5 units to 10 units, and photon energy is proportional to frequency, the energy factor is**

ANSWER _____

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9 **If the frequency of light doubles from 1 units to 2 units, and photon energy is proportional to frequency, the energy factor is**

ANSWER _____

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10 **If the frequency of light doubles from 4 units to 8 units, and photon energy is proportional to frequency, the energy factor is**

ANSWER _____

Understand It with Pulse | Flag a mistake

11 **Light behaves as both a wave and a**

A solid only

B liquid only

C particle

D magnet only

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12 **The speed of light in a vacuum is about**

A 3 times 10 to the 6 meters per second

B 3 times 10 to the 5 meters per second

C 3 times 10 to the 10 meters per second

D 3 times 10 to the 8 meters per second

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13 **A photon is a quantum of**

A light

B sound

C heat

D charge

Understand It with Pulse | Flag a mistake

14 **The photoelectric effect shows that light energy arrives in**

A continuous waves only

B packets

C sound waves

D magnetic fields only

Understand It with Pulse | Flag a mistake

15 **An atom emits light when an electron moves to a**

A higher energy level only

B different atom

C lower energy level

D nucleus

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16 **Light travels at 300 units in a vacuum and enters a medium with refractive index 2. Its speed in the medium is**

ANSWER _____

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17 **Light travels at 300 units in a vacuum and enters a medium with refractive index 3. Its speed in the medium is**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **Light travels at 300 units in a vacuum and enters a medium with refractive index 1. Its speed in the medium is**

ANSWER

Understand It with Pulse | Flag a mistake

19 **Light travels at 300 units in a vacuum and enters a medium with refractive index 5. Its speed in the medium is**

ANSWER

Understand It with Pulse | Flag a mistake

20 **Light travels at 300 units in a vacuum and enters a medium with refractive index 4. Its speed in the medium is**

ANSWER

Understand It with Pulse | Flag a mistake

21 After 1 half lives, the fraction of a radioactive sample remaining is

A $\frac{1}{2}$

B $\frac{1}{4}$

C $\frac{1}{1}$

D 1

Understand It with Pulse | Flag a mistake

22 After 2 half lives, the fraction of a radioactive sample remaining is

A $\frac{1}{8}$

B $\frac{1}{4}$

C $\frac{1}{2}$

D 1

Understand It with Pulse | Flag a mistake

23 After 3 half lives, the fraction of a radioactive sample remaining is

- **A** $\frac{1}{16}$
- **B** $\frac{1}{3}$
- **C** $\frac{1}{8}$
- **D** 1

Understand It with Pulse | Flag a mistake

24 After 4 half lives, the fraction of a radioactive sample remaining is

- **A** $\frac{1}{32}$
- **B** $\frac{1}{4}$
- **C** 1
- **D** $\frac{1}{16}$

Understand It with Pulse | Flag a mistake

25 **After 5 half lives, the fraction of a radioactive sample remaining is**

A $\frac{1}{32}$

B $\frac{1}{64}$

C $\frac{1}{5}$

D 1

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	3	**10.**	2	**19.**	60
2.	3	**11.**	C	**20.**	75
3.	6	**12.**	D	**21.**	A
4.	6	**13.**	A	**22.**	B
5.	6	**14.**	B	**23.**	C
6.	2	**15.**	C	**24.**	D
7.	2	**16.**	150	**25.**	A
8.	2	**17.**	100		
9.	2	**18.**	300		

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