



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

- 1 Photons with an energy of **7.9 electronvolts** strike a zinc plate, causing the emission of photoelectrons with a maximum kinetic energy of **4.0 electronvolts**. The **work function** of the zinc plate is
- A 11.9 eV
  - B 7.9 eV
  - C 3.9 eV
  - D 4.0 eV

- 3 As a monochromatic beam of light passes **obliquely from flint glass into water**, how do the **characteristics of the beam of light change**?
- A Its wavelength decreases and its frequency decreases.
  - B Its wavelength decreases and its frequency increases.
  - C Its wavelength increases and it bends toward

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## PREVIEW

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7

- A 1.20
- B 2.50
- C 7.50
- D 0.833

9

Compared to the **wavelength of red light**, the **wavelength of yellow light** is

- A shorter
- B longer
- C the same



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A helium-neon laser emits energy in the **visible red region** in the form of

- A alpha particles
- B gamma rays
- C electrons
- D photons





## ANSWER KEY

Photons with an energy of **7.9 electronvolts** strike a zinc plate, causing the emission of photoelectrons with a maximum kinetic energy of **4.0 electronvolts**. The **work function** of the zinc plate is

- A 11.9 eV
- B 7.9 eV
- C 3.9 eV
- D 4.0 eV

(C)

Which equation correctly relates the **speed  $v$** , **wavelength  $\lambda$** , and **period  $T$**  of a **periodic wave**?

- A  $v = \frac{T}{\lambda}$
- B  $v = T\lambda$
- C  $v = \frac{\lambda}{T}$
- D  $v = \frac{\lambda^2}{T}$

(C)

As a monochromatic beam of light passes **obliquely from flint glass into water**, how do the **characteristics of the beam of light change**?

- A Its wavelength decreases and its frequency decreases.
- B Its wavelength decreases and its frequency increases.
- C Its wavelength increases and it bends toward the normal.
- D Its wavelength increases and it bends away

(d)

The **threshold frequency** in a photoelectric experiment is **most closely related** to the

- A brightness of the incident light
- B thickness of the photoemissive metal
- C area of the photoemissive metal
- D work function of the photoemissive metal

(d)



## PREVIEW

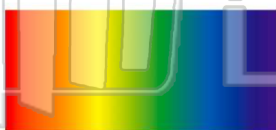
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- B 2.50
- C 7.50
- D 0.833

D  $3.32 \times 10^{-19}$  J

Compared to the **wavelength** of red light, the **wavelength** of yellow light is

- A shorter
- B longer
- C the same



(a)

A helium-neon laser emits energy in the **visible red region** in the form of

- A alpha particles
- B gamma rays
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(d)