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Crash Course Physics #40: Spectra Interference

Name: _____ Date: _____

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1. The phenomenon that causes bright and dark lines when light passes through slits is called _____.
2. The dark regions in a diffraction pattern are the result of _____ interference.
3. A device that separates light into different wavelengths for analysis is a _____.
4. A _____ spectrum consists of specific lines that indicate the elemental composition of a low-pressure gas.
5. A _____ spectrum is produced when a solid or high-pressure gas is heated and emits a wide range of wavelengths.
6. The dark lines in a continuous spectrum caused by absorption of specific wavelengths are called _____ lines.
7. The colorful reflections seen in soap bubbles or oil slicks are caused by _____ film interference.
8. The interference patterns in Newton's Rings are caused by the thin layer of _____ between a curved lens and a flat glass plate.
9. When two waves are perfectly in phase, they produce _____ interference.
10. A _____-degree phase shift occurs when light reflects off a surface with a higher index of refraction.
11. Light is a _____ wave, meaning it oscillates perpendicular to the direction it travels.
12. The electric field of a light wave can oscillate in both _____ and horizontal directions.
13. The process of allowing only light oscillating in a specific direction to pass through is called _____.
14. Polarized sunglasses work by allowing only _____ polarized light to pass through.
15. When sunlight reflects off flat water, the reflected light becomes partially _____ polarized.

Crash Course Physics #40: Spectra Interference KEY

1. The phenomenon that causes bright and dark lines when light passes through slits is called **diffraction**.
2. The dark regions in a diffraction pattern are the result of **destructive** interference.
3. A device that separates light into different wavelengths for analysis is a **spectrometer**.
4. A **line** spectrum consists of specific lines that indicate the elemental composition of a low-pressure gas.
5. A **continuous** spectrum is produced when a solid or high-pressure gas is heated and emits a wide range of wavelengths.
6. The dark lines in a continuous spectrum caused by absorption of specific wavelengths are called **absorption** lines.
7. The colorful reflections seen in soap bubbles or oil slicks are caused by **thin** film interference.
8. The interference patterns in Newton's Rings are caused by the thin layer of **air** between a curved lens and a flat glass plate.
9. When two waves are perfectly in phase, they produce **constructive** interference.
10. A **180**-degree phase shift occurs when light reflects off a surface with a higher index of refraction.
11. Light is a **transverse** wave, meaning it oscillates perpendicular to the direction it travels.
12. The electric field of a light wave can oscillate in both **vertical** and horizontal directions.
13. The process of allowing only light oscillating in a specific direction to pass through is called **polarization**.
14. Polarized sunglasses work by allowing only **vertically** polarized light to pass through.
15. When sunlight reflects off flat water, the reflected light becomes partially **horizontally** polarized.

15 Questions

Answer Key Included

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