ALBERTA PHYSICS 30 · UNIT C · 5 QUESTIONS

Electromagnetic Radiation — Practice Test

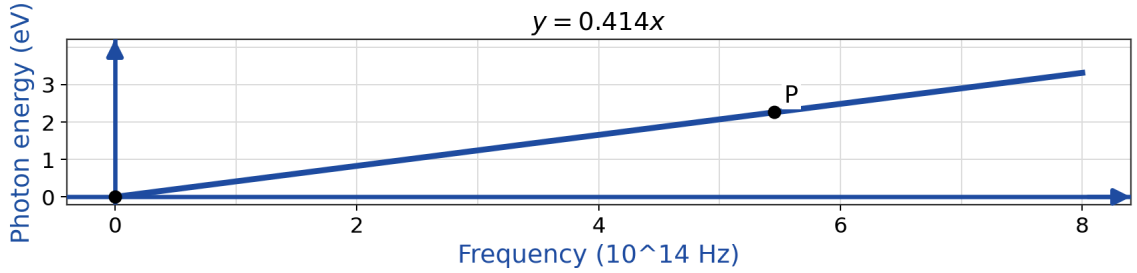
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1 **Radiation emitted by a cobalt-60 source has a wavelength of 1.0×10^{-12} m. This radiation is classified as**

- A radio waves
- B ultraviolet radiation
- C X-rays
- D gamma rays

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2 **The graph shows photon energy against frequency, with point P marked on the line. Point P marks green light. The energy of one photon of this light, in electron volts, is**



A 2.26 eV

B 0.443 eV

C 3.62 eV

D 1.13 eV

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3 **Clear glass laboratory beaker filled with clear colourless liquid on a white bench. Light travels through a clear liquid at a speed of 2.25×10^8 m/s. The index of refraction of the liquid, to the nearest hundredth, is ____. (Use $c = 3.00 \times 10^8$ m/s in a vacuum.)**



ANSWER _____

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4 **Total internal reflection can occur when light**

- **A** travels from a lower-index medium into a higher-index medium at any angle of incidence
- **B** travels from a higher-index medium into a lower-index medium at an angle of incidence greater than the critical angle
- **C** travels from a higher-index medium into a lower-index medium at an angle of incidence less than the critical angle
- **D** travels into a medium that has the same index of refraction

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5 **A metal is illuminated by light that has a frequency below the threshold frequency of the metal. If the intensity of this light is increased, then**

- **A** photoelectrons will be emitted, but with a smaller maximum kinetic energy
- **B** no photoelectrons will be emitted, regardless of the intensity
- **C** photoelectrons will be emitted after a long enough time delay
- **D** the threshold frequency of the metal will decrease

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ANSWER KEY

1. D
2. A
3. 1.33
4. B
5. B

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