

Photoelectric Effect Drills

- 1 Magnesium has a work function of 3.68 eV. What is the maximum speed of the ejected electrons if the metal is illuminated at 2.99×10^{-7} m?
- 2 Cadmium has a work function of 4.07 eV. What is the maximum speed of the ejected electrons if the metal is illuminated at 2.70×10^{-7} m?
- 3 The threshold frequency of a metal is 1.23×10^{15} Hz. What is its work function?
- 4 Light of frequency 1.04×10^{15} Hz ejects electrons with a maximum kinetic energy of 3.46×10^{-20} J. What is the work function of the metal?
- 5 The threshold frequency of a metal is 1.21×10^{15} Hz. What is its work function?
- 6 Nickel has a work function of 5.01 eV. What is the threshold frequency?
- 7 Magnesium has a work function of 3.68 eV. What is the maximum kinetic energy of the ejected electrons if the metal is illuminated at 1.10×10^{15} Hz?
- 8 Iron has a work function of 4.50 eV. What is the maximum kinetic energy of the ejected electrons if the metal is illuminated at 1.14×10^{15} Hz?
- 9 The threshold frequency of a metal is 9.83×10^{14} Hz. What is its work function?
- 10 The threshold frequency of a metal is 8.89×10^{14} Hz. What is its work function?
- 11 The threshold frequency of a metal is 5.51×10^{14} Hz. What is its work function?
- 12 Light of wavelength 3.07×10^{-7} m ejects electrons with a maximum speed of 7.85×10^5 m/s. What is the work function of the metal?
- 13 Light of wavelength 2.69×10^{-7} m ejects electrons with a maximum speed of 3.38×10^5 m/s. What is the work function of the metal?

$$h = 6.626 \times 10^{-34} = 6.626 \times 10^{-34}$$

Answers:

1. 4.10×10^5 m/s 2. 4.33×10^5 m/s 3. 5.11 eV 4. 4.07 eV 5. 5.01 eV 6. 1.21×10^{15} Hz 7. 1.42×10^{-19} J 8. 3.40×10^{-20} J 9. 4.07 eV 10. 3.68 eV 11. 2.28 eV 12. 2.30 eV 13. 4.30 eV