SPH4U Name: Date:

Photoelectric Effect Drills

1 Selenium has a work function of 5.11 eV. What is the threshold frequency?

2 Light of frequency 1.09E15 Hz ejects electrons with a maximum kinetic energy of 1.46E-19 J. What is the work function of the metal?

3 Zinc has a work function of 4.30 eV. What is the maximum kinetic energy of the ejected electrons if the metal is illuminated at 1.14E15 Hz?

4 Potassium has a work function of 2.30 eV. What frequency of light will eject electrons with a maximum speed of 7.18E5 m/s?

5 Uranium has a work function of 3.60 eV. What frequency of light will eject electrons with a maximum speed of 5.89E5 m/s?

6 Carbon has a work function of 4.81 eV. What frequency of light will eject electrons with a maximum speed of 1.73E5 m/s?

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 1.11E15 Hz?

8 Zinc has a work function of 4.30 eV. What is the maximum kinetic energy of the ejected electrons if the metal is illuminated at 1.06E15 Hz?

9 Light of wavelength 2.77E-7 m ejects electrons with a maximum speed of 3.46E5 m/s. What is the work function of the metal?

10 Calcium has a work function of 2.90 eV. What wavelength of light will eject electrons with a maximum kinetic energy of 1.00E-19 J?

11 Calcium has a work function of 2.90 eV. What is the maximum kinetic energy of the ejected electrons if the metal is illuminated at 8.97E14 Hz?

12 The work function of a metal is 4.30 eV. What is its threshold frequency?

13 Mercury has a work function of 4.50 eV. What wavelength of light will eject electrons with a maximum kinetic energy of 5.91E-20 J?

h = 6.626E-34 = 6.626 x 10^(-34)

Answers:

1. 1.23E15 Hz 2. 3.60 eV 3. 6.75E-20 J 4. 9.09E14 Hz 5. 1.11E15 Hz 6. 1.18E15 Hz 7. 1.44E-19 J 8. 1.51E-20 J 9. 4.14 eV 10. 3.52E-7 m 11. 1.30E-19 J 12. 1.04E15 Hz 13. 2.55E-7 m