SPH4U Name: Date:

# Photoelectric Effect Drills

1 Nickel has a work function of 5.01 eV. What is the maximum kinetic energy of the ejected electrons if the metal is illuminated at 9.23E14 Hz?

2 Light of frequency 1.20E15 Hz ejects electrons with a maximum kinetic energy of 1.04E-19 J. What is the work function of the metal?

3 Light of wavelength 2.58E-7 m ejects electrons with a maximum speed of 1.68E5 m/s. What is the work function of the metal?

4 Zinc has a work function of 4.30 eV. What is the maximum speed of the ejected electrons if the metal is illuminated at 2.80E-7 m?

5 Cadmium has a work function of 4.07 eV. What frequency of light will eject electrons with a maximum speed of 3.79E5 m/s?

6 The work function of a metal is 4.70 eV. What is its threshold frequency?

7 Light of wavelength 2.56E-7 m ejects electrons with a maximum speed of 1.28E5 m/s. What is the work function of the metal?

8 Light of frequency 1.09E15 Hz ejects electrons with a maximum kinetic energy of 6.65E-20 J. What is the work function of the metal?

9 The threshold frequency of a metal is 1.53E15 Hz. What is its work function?

10 Light of wavelength 2.82E-7 m ejects electrons with a maximum speed of 5.06E5 m/s. What is the work function of the metal?

11 Cadmium has a work function of 4.07 eV. What wavelength of light will eject electrons with a maximum kinetic energy of 6.01E-20 J?

12 Light of frequency 6.18E14 Hz ejects electrons with a maximum kinetic energy of 7.35E-20 J. What is the work function of the metal?

13 Copper has a work function of 4.70 eV. What wavelength of light will eject electrons with a maximum kinetic energy of 2.32E-20 J?

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

Answers:

1. No electrons are emitted. 2. 4.30 eV 3. 4.73 eV 4. 2.18E5 m/s 5. 1.08E15 Hz 6. 1.13E15 Hz 7. 4.81 eV 8. 4.08 eV 9. 6.35 eV 10. 3.68 eV 11. 2.79E-7 m 12. 2.10 eV 13. 2.56E-7 m