Saitechinfo NEET-JEE Academy

Fill-in-the-Blanks: Electron Emission

1. The process of releasing electrons from a material's surface is called _____.
2. The minimum energy required to release an electron from a surface is known as the _____.
3. The unit of work function is typically _____.
4. In thermionic emission, electrons are emitted by supplying _____ to the material.
5. The photoelectric effect occurs when _____ strikes the surface of the material.
6. The formula for Einstein’s photoelectric equation is _____.
7. The photoelectric effect is observed only if the photon energy exceeds the _____ of the material.
8. The kinetic energy of an emitted photoelectron is given by _____.
9. Increasing the light intensity increases the _____ of photoelectrons emitted.
10. Field emission involves the application of a _____ near the material’s surface.
11. The quantum mechanical phenomenon responsible for field emission is called _____.
12. The strength of the electric field required for field emission is of the order of _____.
13. In thermionic emission, the emission rate depends on the _____ of the material.
14. Thermionic emission is commonly used in devices like _____ and cathode ray tubes.
15. The photoelectric effect is widely applied in devices such as _____ and photomultiplier tubes.
16. The process of emission in field emission devices is also called _____.
17. Field emission is commonly used in high-resolution _____.
18. The emitted electrons in thermionic emission gain energy from _____ supplied to the material.
19. Increasing the frequency of light in the photoelectric effect increases the _____ of emitted electrons.
20. Materials with lower work functions emit electrons _____ compared to those with higher work functions.

Answers

1. **Electron emission**
2. **Work function**
3. **Electron volts (eV)**
4. **Heat**
5. **Light (photons)**
6. **$h\nu = \Phi + K.E.$**
7. **Work function**
8. **$K.E. = h\nu - \Phi$**
9. **Number**
10. **Strong electric field**
11. **Quantum tunneling**
12. **10^7 V/cm**
13. **Temperature**
14. **Vacuum tubes**
15. **Solar cells**

16. **Cold emission**
17. **Microscopy**
18. **Heat energy**
19. **Kinetic energy**
20. **More easily**