Physics - ICS Part 2 Physics Chapter 19 Short Questions Preparation

Q1. Will the bright light ejects more from metal surface than dimmer light of tha same colour?

Ans 1: Since intensity number of electrons.
and bright light is more intense than dimmer one.So bright light will ejects more electrons than dimmer light.

Q2. When does light behaves as a wave?When does light behaves as a particle?

Ans 1: Light behave as a wave when it propagates from one place to other and light behave as a particle when it interacts with matter,Light behaves as a wave in interference and diffraction,Light behaves as a particle in photoelectric and Compton effect.

Q3. Define Stopping potential and Threshold frequency.

Ans 1: Stopping potential:The stopping potential is the potential difference applied to stop the electrons from being ejected from the surface when the light fall on it.
Threshold frequency:The minimum of frequency of incident light at which electrons are emitted from a surface is called threshold frequency.

Q4. Why don't we observe a Compton Effect with visible light?

Ans 1: The frequency of visible light is less than x rays,And the wavelength of visible light is much greater than the Compton of wavelength of electron,So compton effect can not observed with visible light.

Q5. Define ionization potential and excitation potential.

Ans 1: Ionization potential:The potential necessary to remove an electron from the atom is called ionization potential,It is expressed in volts.
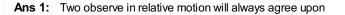
Ans 2: Excitation potential:The potential require to raise orbital electron in atom from one energy level to an other is called excitation potential.

Q6. Which has the lower energy quanta,radio waves or x rays?Explain

Ans 1: Energy of quanta is given as E=hf-hc/lamda
Radio waves length has longer wavelength,Therefore radio waves has lower energy quanta.

Q7. What are the measurement on which two observers in relative motion will always agree upon?

Ans 1: Two observe in relative motion will always agree upon

1. Force
2. Acceleration

Q8. Define Compton effect.Write formula of Compton shift for scattering angle.

Ans 1: When X-rays are scattered by loosely bound electrons from a graphite target,the phenomena of change in wavelength is known as Compton Effect.Compton shift for scattering angle is given

$$\lambda' - \lambda = \frac{h}{m_e c}(1 - \cos\theta),$$

Q9. Is it possible to create a single electron from energy?

Ans 1: No it is not possible to create single electron from energy.Because electron has negative charge and photon has no charge,

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Q10. What are black body radiations and how can you get a black body?

Ans 1: An objects that absorbs all radiations falling on it,at all wavelength is called a black body.
When a body is heated ,it emits radiation its emission is called black body.
Black body is solid that has hollow cavity within it and a small hole through which radiations can enter or escape.The inside is blackened with suit to make it as good an absorber and as a bad reflector as possible.