

**MOUNT CARMEL MATIRC HR . SEC . SCHOOL****STD:12****PHYSICS UNIT -7 LESSON****MARKS ;45****NOVEMBER TEST****I ANSWER THE FOLLOWING QUESTION S****6X2=12**

- 1. Define work function of a metal. Give its unit**
- 2. How does photocurrent vary with the intensity of the incident light?**
- 3. How will you define threshold frequency**
- 4. what is de Broglie matter waves**
- 5. How many photons of frequency  $10^{14}$  Hz will make up 19.86 J of energy?**
- 6. An electron is accelerated through a potential difference of 81V. What is the de Broglie wavelength associated with it? To which part of electromagnetic spectrum does this wavelength correspond?**

**II ANSWER THE FOLLOWING QUESTIONS****6X3=18**

- 7. List out the laws of photoelectric effect**
- 8. Derive an expression for de Broglie wavelength of electrons**
- 9. Explain why photoelectric effect cannot be explained on the basis of wave nature of light**
- 10. Calculate the energies of the photons associated with the following radiation: (i) violet light of 413nm (ii) X-rays of 0.1 nm (iii) radio waves of 10 m.**
- 11. Calculate the de Broglie wavelength of a proton whose kinetic energy is equal to  $81.9 \times 10^{-15}$  J. (Given: mass of proton is 1836 times that of electron)**

- 12. A deuteron and an alpha particle are accelerated with the same potential. Which one of the two has i) greater value of de Broglie wavelength associated with it and ii) less kinetic energy? Explain**

**III ANSWER THE FOOLOWING QUESTION****3X5=15**

- 13. What do you mean by electron emission? Explain briefly various methods of electron emission.**
- 14. Explain how frequency of incident light varies with stopping potential**

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**STD:12**

**PHYSICS UNIT -7 LESSON**

**MARKS :45**

**NOVEMBER TEST**

**15. Obtain Einstein's photoelectric equation with necessary explanation.**

**S.NAGARAJAN ( PG PHYSICS TEACHER)**

**MOUNT CARMEL MATRIC HR SEC SCHOOL**

**KALLAKUICHI -04151220250**

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