

## Worksheet: Dual Nature of Radiation and Matter

Tamil Nadu State Board · Class 12 · Physics · 5 questions · 12 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 12

**Q1.** The threshold frequency of a metal is  $5 \times 10^{14}$  Hz. Find the work function in eV ( $h = 4.14 \times 10^{-15}$  eV s). [2 marks]

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**Q2.** Find the de Broglie wavelength of an electron accelerated through 100 V. [2 marks]

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**Q3.** Photoelectrons of max KE 1.5 eV are emitted by 300 nm light. Find the work function ( $hc = 1240$  eV nm). [3 marks]

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**Q4.** Find the de Broglie wavelength of a proton ( $m = 1.67 \times 10^{-27}$  kg) at  $2 \times 10^6$  m/s. [3 marks]

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**Q5.** Stopping potential is 1.2 V for 400 nm light. Find the work function. [2 marks]

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