

## JEE MAIN STRUCTURE OF ATOM — DUAL BEHAVIOUR OF MATTER, DE BROGLIE THEORY — PYQS

**Max. Marks: 8**
**Questions: 2**

### Section A (MCQ) — 1 question

- Q.1** If  $a_0$  is denoted as the Bohr radius of hydrogen atom, then what is the de Broglie wavelength ( $\lambda$ ) of the electron present in the second orbit of hydrogen atom? [ $n$  : any integer]

[JEE Main 2025 (Online) 29th January Morning Shift]

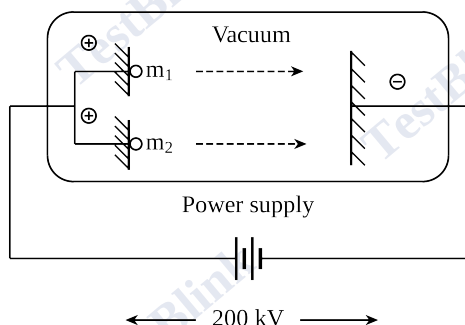
- (1)  $\frac{8\pi a_0}{n}$       (2)  $\frac{2a_0}{n\pi}$       (3)  $\frac{\pi a_0}{4\pi}$       (4)  $\frac{4\pi a_0}{n}$

Scan or tap for the full solution



### Section B (Numerical) — 1 question

- Q.2** Two positively charged particles  $m_1$  and  $m_2$  have been accelerated across the same potential difference of 200 kV as shown below.



[Given mass of  $m_1 = 1$  amu and  $m_2 = 4$  amu]

The de Broglie wavelength of  $m_1$  will be  $x$  times of  $m_2$ . The value of  $x$  is \_\_\_\_\_ (nearest integer)

[JEE Main 2026 (Online) 28th January Evening Shift]

Scan or tap for the full solution



## ANSWER KEY

### Section A (MCQ) — 1 question

|       |   |  |  |  |  |  |  |  |  |  |
|-------|---|--|--|--|--|--|--|--|--|--|
| Ques. | 1 |  |  |  |  |  |  |  |  |  |
| Ans.  | 1 |  |  |  |  |  |  |  |  |  |

### Section B (Numerical) — 1 question

|       |   |  |  |  |  |  |  |  |  |  |
|-------|---|--|--|--|--|--|--|--|--|--|
| Ques. | 2 |  |  |  |  |  |  |  |  |  |
| Ans.  | 2 |  |  |  |  |  |  |  |  |  |