

QUESTION

5. If 50% of a reaction occurs in 100 seconds and 75% of the reaction occurs in 200 seconds, the order of this reaction is

- (1) 1
- (2) 2
- (3) zero
- (4) 3

ANSWER :

Solution:

$t_{1/2} = 100$ second (50% reaction)

After 200 seconds, 75% of reaction will be completed,

i.e., $t_{75\%} = 200$ seconds.

So, it follows first-order kinetics as the half-life is independent of concentration and follows the relation $t_{3/4} = 2 \times t_{1/2}$

Hence option (1) is the answer.