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NEET CHEMICAL KINETICS — INTEGRATED RATE LAW OF FIRST ORDER REACTION — PYQS

Max. Marks: 32 **Questions:** 8

Section A (MCQ) — 8 questions

Q.1 If the rate constant of a reaction is 0.03 s^{-1}, how much time does it take for 7.2 mol L^{-1} concentration of the reactant to get reduced to 0.9 mol L^{-1} ? (Given: $\log 2 = 0.301$)

[NEET (UG) 2025]

(1) 210 s (2) 21.0 s (3) 69.3 s (4) 23.1 s

Scan or tap for the full solution

Q.2 For a first order reaction $A \longrightarrow \text{Products}$, initial concentration of A is 0.1 M, which becomes 0.001 M after 5 minutes. Rate constant for the reaction in min^{-1} is [NEET (UG) 2022]

(1) 1.3818 (2) 0.9212 (3) 0.4606 (4) 0.2303

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Q.3 The rate constant for a first order reaction is $4.606 \times 10^{-3}\ s^{-1}$. The time required to reduce 2.0 g of the reactant to 0.2 g is : [NEET (UG) 2020]

(1) 200 s (2) 500 s (3) 1000 s (4) 100 s

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Q.4 If the rate constant for a first order reaction is k, the time (t) required for the completion of 99 % of the reaction is given by : [NEET (UG) 2019]

(1) $t = \frac{4.606}{k}$ (2) $t = \frac{2.303}{k}$

(3) $t = \frac{0.693}{k}$ (4) $t = \frac{6.909}{k}$

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Q.5 A first order reaction has a specific reaction rate of $10^{-2}\ sec^{-1}$. How much time will it take for 20 g of the reactant to reduce to 5 g? [NEET 2017]

(1) 138.6 sec (2) 346.5 sec

(3) 693.0 sec (4) 238.6 sec

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Q.6 The rate of first-order reaction is 0.04 mol $L^{-1}\ s^{-1}$ at 10 seconds and 0.03 mol $L^{-1}\ s^{-1}$ at 20 seconds after initiation of the reaction. The half-life period of the reaction is [NEET 2016 (Phase 1)]

(1) 44.1 s (2) 54.1 s (3) 24.1 s (4) 34.1 s

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Q.7 If 60% of a first order reaction was completed in 60 minutes, 50% of the same reaction would be completed in approximately (log 4 = 0.60, log 5 = 0.70) [AIPMT 2007]

(1) 45 minutes (2) 60 minutes

(3) 40 minutes (4) 50 minutes

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Q.8 The reaction $A \longrightarrow B$ follows first order kinetics. The time taken for 0.8 mole of A to produce 0.6 mole of B is 1 hour. What is the time taken for conversion of 0.9 mole of A to produce 0.675 mole of B? [AIPMT 2003]

(1) 1 hour (2) 0.5 hour

(3) 0.25 hour (4) 2 hours

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8			
Ans.	3	2	2	1	1	3	1	1			