



CHEMISTRY

NCERT - NCERT CHEMISTRY (GUJRATI)

CHEMICAL KINETICS - I

Questions A Choose The Correct Answer

1. $\text{mol}\cdot\text{dm}^{-3}\cdot\text{sec}^{-1}$ is the unit of

A. rate

B. rate constant

C. order

D. active mass

Answer:



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2. The elementary step with slow rate represents

A. rate determining step

B. maximum rate step

C. third order rate

D. overall order

Answer:



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3. Molecularity is determined for

- A. an elementary reaction
- B. an overall reaction
- C. an over all stoichiometric reaction
- D. a fractional order reaction

Answer:



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Questions B Fill Up The Blanks

1. Decomposition of aqueous NH_4NO_2 proceeds by _____ reaction.



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2. Fractional orders are found in _____ reaction.



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3. In a _____ reaction rate does not depend on the reactant



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Questions D Write Very Short Answers

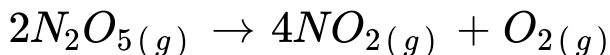
1. Define the rate of a reaction.



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Questions E Explain Briefly On The Following

1. Discuss the rate of the reaction



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2. One ml of methyl acetate was added to 20 ml of 0.5 N sulphuric acid. 2 ml of the reaction mixture was withdrawn at various time intervals and titrated against a solution of standard alkali. The titre values are tabulated. Show that the reaction is first order and calculate the rate constant and half life period of the reaction.

Time (s)	0	600	1200	2400	∞
Volume of alkali (ml)	19.3	19.9	20.5	21.7	41.9

A. mass

$$k = 4.570 \times 10^{-5} \text{ sec}^{-1}, t_1 = 1.570 \times 10^4 \text{ sec}$$

B.

C.

D.

Answer:



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3. In I order reaction the initial concentration of the reactant as 0.05 mole/litre and the rate constant

$1.5 \times 10^{-3} \text{ min}^{-1}$. What is the initial rate of the reaction.

A. $7.5 \times 10^{-5} \text{ mol lit}^{-1}\text{min}^{-1}$

B.

C.

D.

Answer:



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4. If a reaction with $t_{1/2} = 69.3$ second, has a rate constant value of 10^{-2} per second. Calculate the

order of the reaction.

A. One

B.

C.

D.

Answer:



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5. The time for half life of a first order reaction is 1 hr.

what is the time taken for 87.5% completion of the reaction?



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6. The following results were obtained for the saponification of ethyl acetate using equal concentrations of ester and alkali.

Time	0	4.89	10.07	23.66	∞
Acid in ml	47.65	38.92	32.62	22.58	11.84

Show that the reaction is of the second order.

A.

$$\text{Mean Value of } k = 9.68 \times 10^{-4} \text{ lit mol}^{-1}\text{sec}^{-1}$$

B.

C.

D.

Answer:



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