

PYQSide

NEET CHEMICAL KINETICS — AVERAGE AND INSTANTANEOUS RATE OF REACTION — PYQS

Max. Marks: 36

Questions: 9

Section A (MCQ)

- Q.1** For a chemical reaction
 $4A + 3B \longrightarrow 6C + 9D$
 Rate of formation of C is $6 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$ and rate of disappearance of A is $4 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$. The rate of reaction and amount of B consumed in interval of 10 seconds, respectively will be :

[NEET (UG) 2022 (Phase 2)]

- (1) $10 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$ and $30 \times 10^{-2} \text{ mol L}^{-1}$
 (2) $1 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$ and $30 \times 10^{-2} \text{ mol L}^{-1}$
 (3) $10 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$ and $10 \times 10^{-2} \text{ mol L}^{-1}$
 (4) $1 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$ and $10 \times 10^{-2} \text{ mol L}^{-1}$

Scan or tap for the full solution



- Q.2** For the chemical reaction
 $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$
 the correct option is :

[NEET (UG) 2019]

- (1) $-\frac{d[\text{N}_2]}{dt} = 2 \frac{d[\text{NH}_3]}{dt}$
 (2) $-\frac{d[\text{N}_2]}{dt} = \frac{1}{2} \frac{d[\text{NH}_3]}{dt}$
 (3) $3 \frac{d[\text{H}_2]}{dt} = 2 \frac{d[\text{NH}_3]}{dt}$
 (4) $-\frac{1}{3} \frac{d[\text{H}_2]}{dt} = -\frac{1}{2} \frac{d[\text{NH}_3]}{dt}$

Scan or tap for the full solution



- Q.3** The rate of the reaction: $2\text{N}_2\text{O}_5 \longrightarrow 4\text{NO}_2 + \text{O}_2$ can be written in three ways.
 $-\frac{d[\text{N}_2\text{O}_5]}{dt} = k[\text{N}_2\text{O}_5]$
 $\frac{d[\text{NO}_2]}{dt} = k'[\text{N}_2\text{O}_5]; \frac{d[\text{O}_2]}{dt} = k''[\text{N}_2\text{O}_5]$

The relationship between k and k' and between k and k'' are

[AIPMT 2011 (Mains)]

- (1) $k' = 2k; k'' = k$ (2) $k' = 2k; k'' = k/2$
 (3) $k' = 2k; k'' = 2k$ (4) $k' = k; k'' = k$

Scan or tap for the full solution



- Q.4** For the reaction $\text{N}_2\text{O}_5(\text{g}) \longrightarrow 2\text{NO}_2(\text{g}) + \frac{1}{2}\text{O}_2(\text{g})$ the value of rate of disappearance of N_2O_5 is given as $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$. The rate of formation of NO_2 and O_2 is given respectively as

[AIPMT 2010 (Prelims)]

- (1) $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$ and $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$
 (2) $1.25 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$ and $3.125 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$
 (3) $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$ and $3.125 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$
 (4) $1.25 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$ and $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$

Scan or tap for the full solution



- Q.5** For the reaction, $\text{N}_2 + 3\text{H}_2 \longrightarrow 2\text{NH}_3$, if $\frac{d[\text{NH}_3]}{dt} = 2 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$,

the value of $-\frac{d[\text{H}_2]}{dt}$ would be [AIPMT 2009]

- (1) $4 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$ (2) $6 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$
 (3) $1 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$ (4) $3 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$

Scan or tap for the full solution



- Q.6** In the reaction,
 $\text{BrO}_3^-(\text{aq}) + 5\text{Br}^-(\text{aq}) + 6\text{H}^+ \longrightarrow 3\text{Br}_2(\text{l}) + 3\text{H}_2\text{O}(\text{l})$
 The rate of appearance of bromine (Br_2) is related to rate of disappearance of bromide ions as

[AIPMT 2009]

- (1) $\frac{d[\text{Br}_2]}{dt} = -\frac{5}{3} \frac{d[\text{Br}^-]}{dt}$ (2) $\frac{d[\text{Br}_2]}{dt} = \frac{5}{3} \frac{d[\text{Br}^-]}{dt}$
 (3) $\frac{d[\text{Br}_2]}{dt} = \frac{3}{5} \frac{d[\text{Br}^-]}{dt}$ (4) $\frac{d[\text{Br}_2]}{dt} = -\frac{3}{5} \frac{d[\text{Br}^-]}{dt}$

Scan or tap for the full solution



- Q.7** Consider the reaction : $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \longrightarrow 2\text{NH}_3(\text{g})$
 The equality relationship between $\frac{d[\text{NH}_3]}{dt}$ and $-\frac{d[\text{H}_2]}{dt}$ is [AIPMT 2006]

- (1) $\frac{d[\text{NH}_3]}{dt} = -\frac{d[\text{H}_2]}{dt}$
 (2) $\frac{d[\text{NH}_3]}{dt} = -\frac{1}{3} \frac{d[\text{H}_2]}{dt}$
 (3) $+\frac{d[\text{NH}_3]}{dt} = -\frac{2}{3} \frac{d[\text{H}_2]}{dt}$
 (4) $+\frac{d[\text{NH}_3]}{dt} = -\frac{3}{2} \frac{d[\text{H}_2]}{dt}$

Scan or tap for the
full solution



Q.8 For the reaction, $2\text{A} + \text{B} \longrightarrow 3\text{C} + \text{D}$, which of the following does not express the reaction rate?

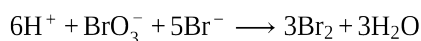
[AIPMT 2006]

- (1) $-\frac{d[\text{A}]}{2dt}$ (2) $-\frac{d[\text{C}]}{3dt}$ (3) $-\frac{d[\text{B}]}{dt}$ (4) $\frac{d[\text{D}]}{dt}$

Scan or tap for the
full solution



Q.9 For the reaction



which of the following relation correctly represents the consumption and formation of products.

[AIPMT 2000]

- (1) $\frac{d[\text{Br}_2]}{dt} = -\frac{3}{5} \frac{d[\text{Br}^-]}{dt}$
 (2) $\frac{d[\text{Br}_2]}{dt} = \frac{3}{5} \frac{d[\text{Br}^-]}{dt}$
 (3) $\frac{d[\text{Br}_2]}{dt} = -\frac{5}{3} \frac{d[\text{Br}^-]}{dt}$
 (4) $\frac{d[\text{Br}_2]}{dt} = \frac{5}{3} \frac{d[\text{Br}^-]}{dt}$

Scan or tap for the
full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9		
Ans.	2	2	2	2	4	4	3	2	1		