76.(A) Rate of reaction = $\frac{1}{2}\frac{-\Delta[N_2O_5]}{\Delta t} = \frac{1}{4}\frac{\Delta[NO_2]}{\Delta t} = \frac{1}{4}\times\frac{5.2\times10^{-3}}{100} = 1.3\times10^{-5}$ M / sec .

77.(C) $2A + B \longrightarrow C$

$$\frac{d[C]}{dt} = \frac{1}{2}\left(\frac{-d[A]}{dt}\right) \Rightarrow \frac{-d[A]}{dt} = 4.4\times10^{-3}$$

78.(B) For zero order reaction, rate is constant but for other reactions rate decreases as reaction proceed.

79.(A)

	$2A(g) \longrightarrow$	B(g) +	C(s)	Total Pressure
At t = 0	P_0	0	0	P_0
At t = 10 min	$P_0 - 2x$	x	0	$P_0 - x = 300$
At $t\to\infty$	0	$\frac{P_0}{2}$	0	$\frac{P_0}{2} = 200$

$\Rightarrow$ $P_0 = 400$ & $x = 100$

It means pressure of A drops from 400 Pa to 200 Pa in 10 min. So, half life is 10 min.

$$k = \frac{0.693}{t_{1/2}} = 0.0693 \text{ min}^{-1}$$

80.(C) $[A]_t = [A]_0 - kt \Rightarrow t_{1/2} = \frac{[A]_0}{k} = \frac{a}{k}$

81.(A) 1st order reaction $0.8\,M \to 0.4$ M, $t_{1/2} = 15$ min

$0.1\text{ M} \to 0.05 \to 0.025$ M Time required is $2 \times t_{1/2} = 30$ min.

82.(D) Hydrolysis of ester is pseudo first order reaction.

83.(A) $r = k[A][B] = k\,\frac{n_A}{V}\cdot\frac{n_B}{V}$

$$r' = k\frac{n_A}{V/4}\cdot\frac{n_B}{V/4} = 16\,k\,\frac{n_A}{V}\cdot\frac{n_B}{V} \quad \Rightarrow \quad r' = 16r$$

84.(C) $t = \frac{1}{k}\ell n\left(\frac{100}{1}\right) = \frac{2\,\ell n\,10\times t_{1/2}}{\ell n 2}$

$$t = \frac{2\times2.303\times6.93}{0.693}\text{ min} = 46.06\text{ min}$$

85.(B) Unit of k for 2nd order reaction = L $mol^{-1}s^{-1}$