CHEMISTRY

11. (4)
Order of reaction is an experimental value, while molecularity is a theoretical value.

12. (2)
$r = k(C_A)^{\frac{3}{2}}(C_B)^{-\frac{1}{2}}$
$\text{Order} = \frac{3}{2} + \left(-\frac{1}{2}\right) = \frac{2}{2} = 1$

13. (1)
The rate will be given by slowest step. Thus,
$r = K[A][B_2].K_c = \frac{[A][A]}{[A_2]}$
or $[A] = [K_c]^{1/2}[A_2]^{1/2}$
$r = K \times [K_c]^{1/2}[A_2]^{1/2}[B_2] = K[A_2]^{1/2}[B]$.
Thus order is $0.5 + 1 = 1.5$

14. (4)
$t_{1/2} = \frac{1}{K[R_0]}$ for second order reactions.

15. (3)
In photochemical reactions the rate of reaction is independent of the concentration of reacting species.

16. (3)

17. (1)
A graph plotted between $\log k$ vs $\frac{1}{T}$ for calculating activation energy.

18. (1)
For the given reaction:
$-\frac{\Delta[I_2]}{\Delta t} = -\frac{\Delta[H_2]}{\Delta t} = \frac{1}{2}\frac{\Delta[HI]}{\Delta t}$

19. (4)
% distribution of $B = \frac{K_1}{K_1 + K_2} \times 100$
$= \frac{1.26 \times 10^{-4}}{1.26 \times 10^{-4} + 3.8 \times 10^{-4}} \times 100$
$B\% = 76.83\%$
%Distribution of $C = \frac{K_2}{K_1 + K_2} \times 100$
$= \frac{3.8 \times 10^{-4}}{1.26 \times 10^{-4} + 3.8 \times 10^{-4}} \times 100$
$C\% = 23.17\%$

20. (2)