

Chemical Kinetics & Nuclear Chemistry (2nd YEAR)

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CONTINUED FROM SAKSHI VIDYA (09.01.2010)

Reasoning type questions

Each question contains STATEMENT-1 and STATEMENT-2. Select the answers as indicated

- (A) STATEMENT-1 is True, STATEMENT-2 is True; STATEMENT-2 is a correct explanation for STATEMENT-1
(B) STATEMENT-1 is True, STATEMENT-2 is True; STATEMENT-2 is NOT a correct explanation for STATEMENT-1
(C) STATEMENT-1 is True, STATEMENT-2 is False
(D) STATEMENT-1 is False, STATEMENT-2 is True

9. **Statement – 1:** For every 10° rise in the temperature the rate of a chemical reaction almost doubles.

Statement – 2: As temperature increases by 10° , energy of activation becomes almost half.

10. **Statement – 1:** Photochemical reactions always occur in presence of light.

Statement – 2: Photochemical reactions do not require energy of activation.

11. **Statement – 1:** Neutrons are better initiators of nuclear reactions, than protons, deuterons or α -particles of the same energy.

Statement – 2: Neutrons are uncharged particles, hence they are not repelled by positively charged nucleus.

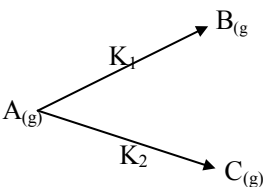
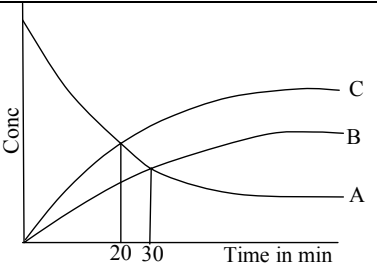
12. **Statement – 1:** The activity of one gram of pure radioactive element is same as that of one gram of its oxide.

Statement – 2: The phenomenon of radioactivity is independent of temperature, pressure and chemical nature of the substance.

13. **Statement – 1:** A catalyst speeds up the process without participating in its mechanism

Statement – 2: A catalyst provides an alternative path of lower activation energy to the reactants

Passage

Consider a first order parallel gas phase reaction. The concentration of reactants and products change according to the graph given. Also given that $K_1 : K_2 = 1 : 2$ $\log 5 = 0.7$ and $\log 2 = 0.3$		
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14. The half life of the overall reaction is,
 A) 30min B) 15min C) 10min D) 20min
15. Identify the correct statement
 A) The ratio of concentration of B to C is 3 : 2 after 30 min
 B) The half life for the formation of B less than C
 C) At 20th minute the initial conc of A is five times that of B
 D) At 30th minute $[A]_t = 2C + B$
16. If the activation energy of individual reactions are E_{a1} and E_{a2} . The activation energy for the overall reaction is,
 A) $E_a = \frac{E_{a1} + E_{a2}}{2}$ B) $E_a = \frac{2E_{a1} + E_{a2}}{2}$ C) $E_a = \frac{2E_{a1} + E_{a2}}{3}$ D) $E_a = \frac{E_{a1} \cdot E_{a2}}{3}$

Answers

- | | | | |
|-------------|-------------|-------------|-------------|
| 9 C | 10 C | 11 A | 12 D |
| 13 D | 14 B | 15 C | 16 A |