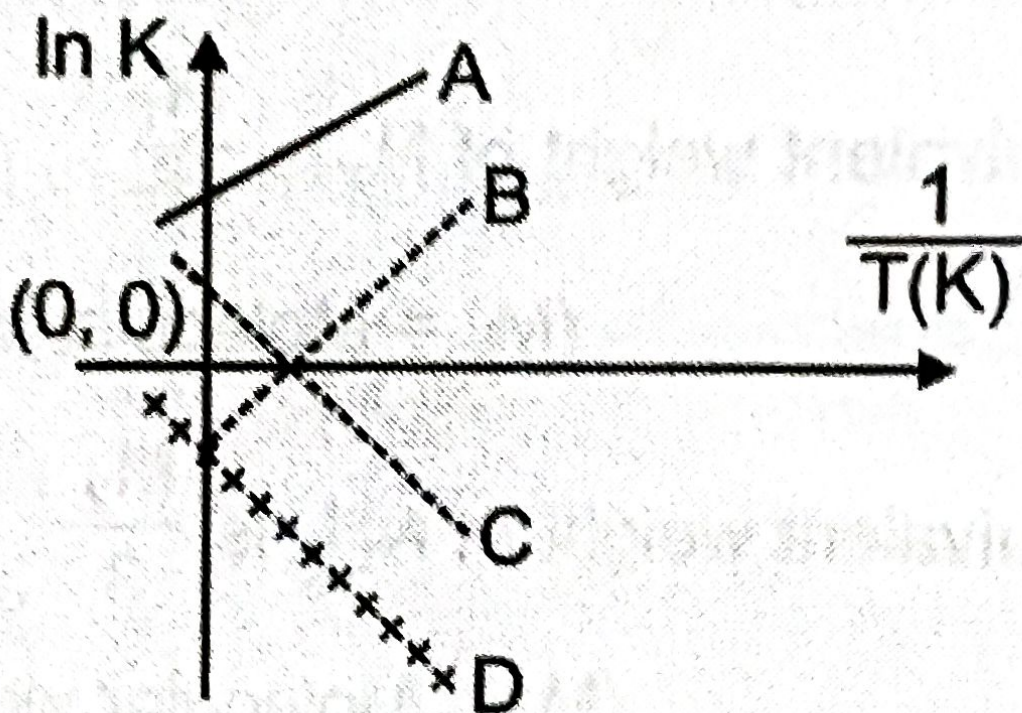


[JEE (Main)-2018]

Which of the following lines correctly show the temperature dependence of equilibrium constant K , for an exothermic reaction?



- (1) A and B (2) B and C
(3) C and D (4) A and D

Sol $\ln k = \frac{-\Delta G^\circ}{RT} = \frac{-1}{RT} (\Delta H^\circ - T\Delta S^\circ)$

$$\ln k = -\left(\frac{\Delta H^\circ}{R}\right) \cdot \frac{1}{T} + \frac{\Delta S^\circ}{R}$$

for exothermic rxn $\Delta H^\circ < 0$

\therefore slope of $\ln k$ vs $\frac{1}{T}$ graph > 0

\therefore A and B are correct graphs.
 \Rightarrow option (D).