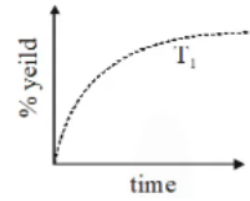




at (P, T_1) is given below -

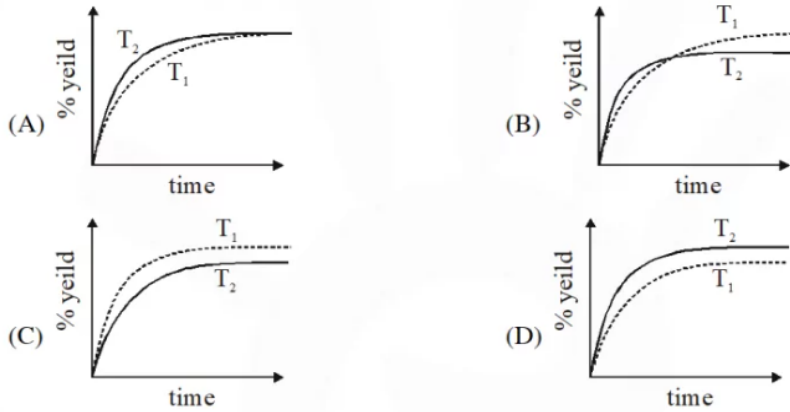
Q. The % yield of ammonia as a function of time in the reaction



If this

reaction is conducted at (P, T_2) , with $T_2 > T_1$, the % yield of ammonia as a function of time is represented by -

[JEE 2015]



Sol. (B) At $t = 0 \Rightarrow r_{\text{net}} = k_f [\text{N}_2][\text{H}_2]^3 = r_f \therefore$ % yield will increase in initial stages due to increase in net speed. As time proceeds $\Rightarrow r_{\text{net}} = k_f [\text{N}_2][\text{H}_2]^3 - k_b [\text{NH}_3]^2$. On increasing temp., k_f & k_b increase but increase of k_b is more so % yield will decrease. % yield will increase in initial stage due to enhance speed but as time proceeds, final yield is governed by thermodynamics due to which yield decrease since reaction is exothermic.