



















































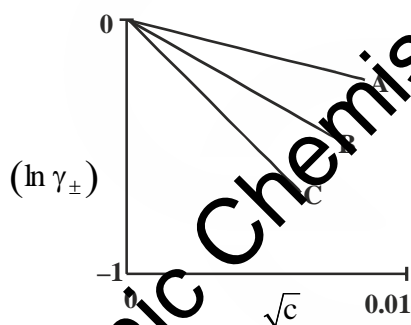








142. The condensation of a hydroxy acid produces a polyester with the probability of linkage at both ends being  $p$ . The mole fraction of  $k$ -mer chain formation is  
 (a)  $p^k$  (b)  $p(1-p)^{k-1}$  (c)  $p^{k-1}(1-p)$  (d)  $p^{k-1}$
143. In simple molecular orbital theory of hydrogen molecule, bonding  $\sigma_g$  and anti-bonding  $\sigma_u$  molecular orbitals are constructed as linear combinations of atomic orbitals of two hydrogen atoms. The spatial part of a purely covalent singlet wavefunction is obtained by  
 (a)  $\sigma_g^2 + \sigma_u^2$  (b)  $\sigma_g^2$  (c)  $\sigma_g^2 - \sigma_u^2$  (d)  $\sigma_g^2 + \frac{1}{2}\sigma_u^2$
144. Two aqueous 1:1 electrolyte systems A and B are at different temperatures  $T_A$  and  $T_B$  and  $C_A$  and  $C_B$  concentrations, respectively. Their Debye lengths will be equal if  
 (a)  $T_A = 2T_B$  and  $C_A = 2C_B$  (b)  $T_A = 2T_B$  and  $C_A = C_B/2$   
 (c)  $T_A = \sqrt{2}T_B$  and  $C_A = 2C_B$  (d)  $T_A = 2T_B$  and  $C_A = \sqrt{2}C_B$
145. Aqueous solutions of NaCl, CaCl<sub>2</sub> and LaCl<sub>3</sub> show the following plots of logarithms of mean ionic activity coefficient ( $\ln \gamma_{\pm}$ ) vs molar concentration (c)



The correct option is then

- |     | NaCl | CaCl <sub>2</sub> | LaCl <sub>3</sub> |
|-----|------|-------------------|-------------------|
| (a) | C    | B                 | A                 |
| (b) | A    | B                 | C                 |
| (c) | A    | C                 | B                 |
| (d) | C    | A                 | B                 |