12. If x gram of gas is adsorbed by m gram of adsorbent at pressure P, the plot of $\log \dfrac{x}{m}$ versus $\log P$ is linear. The slope of the plot is: (n and k are constants and n > 1)

[Online April 15, 2018 (II)]

(a) $\log k$
(b) $\dfrac{1}{n}$
(c) $2k$
(d) n

Ans. (b)

12. (b) According to Freundlich adsorption isotherm.

$$\frac{x}{m} = kP^{\frac{1}{n}}$$

$$\log_{10} \frac{x}{m} = \frac{1}{n} \log_{10} P + \log_{10} k$$

This is the equation of straight line of type $y = mx + c$. Hence slope is 1/n (m) and intercept is $\log_{10} k$.