

Q5. The value of $\frac{1}{\log_2 n} + \frac{1}{\log_3 n} + \dots + \frac{1}{\log_{43} n}$ is

(a) $\frac{1}{\log_{43!} n}$

(b) $\frac{1}{\log_{43} n}$

(c) $\frac{1}{\log_{42} n}$

(d) $\frac{1}{\log_{43} n!}$

Ans 5

$$\begin{aligned} & \frac{1}{\log_2 n} + \frac{1}{\log_3 n} + \dots + \frac{1}{\log_{43} n} \\ &= \log_n 2 + \log_n 3 + \dots + \log_n 43 \\ &= \log_n (2 \cdot 3 \cdot \dots \cdot 43) \\ &= \log_n 43! \\ &= \frac{1}{\log_{43!} n} \end{aligned}$$

Hence, the correct option is (a).