

5. A refrigerator is to maintain eatables kept inside at 9°C . If room temperature is 36°C , calculate the coefficient of performance.

Sol. Temperature inside the refrigerator, $T_1 = 9^{\circ}\text{C} = 282\text{ K}$

Room temperature, $T_2 = 36^{\circ}\text{C} = 309\text{ K}$

$$\text{Coefficient of performance} = \frac{T_1}{T_2 - T_1}$$

$$= \frac{282}{309 - 282}$$

$$= 10.44$$

Therefore, the coefficient of performance of the given refrigerator is 10.44