Que4:

In a certain town, 25% of the families own a phone and 15% own a car; 65% families own neither a phone nor a car and 2,000 families own both a car and a phone. Consider the following three statements :

(A) 5% families own both a car and a phone
(B) 35% families own either a car or a phone
(C) 40,000 families live in the town
Then,
(a) Only (A) and (C) are correct.
(b) Only (B) and (C) are correct.
(c) All (A), (B) and (C) are correct.
(d) Only (A) and (B) are correct.

Ans:

(c) $n(P) = 25\%$

$n(C) = 15\%$

$$n(P' \cup C') = 65\% \Rightarrow n(P \cup C)' = 65\%$$

$$n(P \cup C) = 35\%$$

$$n(P \cap C) = n(P) + n(C) - n(P \cup C)$$

$25 + 15 - 35 = 5\%$

$x \times 5\% = 2000$

$x = 40{,}000$