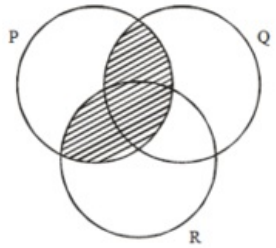
Related Questions with Solutions

Questions

Quetion: 01

What does the shaded region represent in the figure given below ?

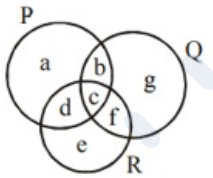


A. $(P \cup Q) - (P \cap Q)$
B. $P \cap (Q \cap R)$
C. $(P \cap Q) \cap (P \cap R)$
D. $(\mathrm{P} \cap \mathrm{Q}) \cup (\mathrm{P} \cap \mathrm{R})$

Solutions

Solution: 01

The shaded region represents $(\mathrm{P} \cap \mathrm{Q}) \cup (\mathrm{P} \cap \mathrm{R})$. Let the intersecting sets $\mathrm{P}, \mathrm{Q}, \mathrm{R}$ divide it into 7 regions marked, a to g as shown below.



The shaded part contains regions $\mathrm{b}, \mathrm{c}, \text{and } \mathrm{d}$.
$(a)\ (P \cup Q) - (P \cap Q) \equiv \quad regions\ a, b, c, d, f, g, -(b, c)$

$\equiv \mathrm{a}, \mathrm{d}, \mathrm{f}, \mathrm{g}, \cdot \quad not\ correct.$
[b] $(\mathrm{P} \cap (\mathrm{Q} \cap \mathrm{R}) \equiv \mathrm{a}, \mathrm{b}, \mathrm{c}, \mathrm{d}, \cap \mathrm{c}, \mathrm{f} \equiv \mathrm{c}$ not correct.
$(c)\ (P \cap Q) \cap (P \cap R) \equiv \quad regions\ b, c, \cap \quad region,\ c, d \equiv c, \quad so$

$not\ correct$
[d] $(P \cap Q) \cup (P \cap R) \equiv$ regions $b, c, \cup c, d \equiv b, c, d$ so correct.

Correct Options

Answer:01
Correct Options: D