

(iii) Thinks (Crazy (x, y))

Hates (y, z)

(iv) $\forall x [\text{Roman}(x) \wedge \text{Knows}(x, \text{Marcus})] \rightarrow$

$\text{Hates}(x, \text{Caesar}) \vee$

$\forall y \forall z (\text{Hates}(y, z) \rightarrow \text{Thinks}(\text{Crazy}(x, y)))$

(v) $(\neg \text{Roman}(x) \vee \neg \text{Knows}(x, \text{Marcus})) \vee \text{Hates}(y, z)$
 $\vee \text{Thinks}(\text{Crazy}(x, y))$

Lifting :- Lifting refers to the process of moving from a lower-level logic to a higher level-logic.

Reasoning :- Reasoning involved drawing conclusions based on given information using logical rules.

5) $P(A) = 0.6$, $P(B) = P(D/A) = 0.02$

$$P(A/D) = \frac{P(D/A) \cdot P(A)}{P(D)}$$

$$= \frac{0.02 \cdot 0.6}{0.024} = \frac{0.012}{0.024} = 0.50$$