Answer all questions Total marks: 25

1. State and explain qualitative rules of plausible reasoning

2. What do you understand by Random variable?

3. List various methods of estimating parameters of probability distribution

4. If \( P(A) = \frac{1}{2}, P(A \cap B) = \frac{3}{5} \) and \( P(B) = p \)

   Find \( p \) if given that the events \( A \) and \( B \) are such that they are (i) mutually exclusive (ii) independent

5. If \( A \) and \( B \) be independent events with \( P(A)=0.3 \) and \( P(B)=0.4 \) find the following:
   (i)\( P(A\cap B) \); (ii)\( P(A\cup B) \); (iii)\( P(A|B) \); (iv)\( P(B|A) \)