1.   Let $P(A) = 0.5$, $P(B) = 0.6$ and $P(A \cup B) = 0.8$.

(a)   Find $P(A \cap B)$.

(2)

(b)   Find $P(A \mid B)$.

(2)

(c)   Decide whether A and B are independent events. Give a reason for your answer.

(2)
(Total 6 marks)

2.   For events A and B, the probabilities are $P(A) = \dfrac{4}{13}$ and $P(B) = \dfrac{5}{13}$.

(a)   If events A and B are mutually exclusive, write down the value of $P(A \cap B)$.

(1)

(b)   If events A and B are independent, find the value of $P(A \cap B)$.

(2)

(c)   If $P(A \cup B) = \dfrac{7}{13}$, find the value of $P(A \cap B)$.

(3)
(Total 6 marks)

3.   Events A and B have probabilities $P(A) = 0.4$, $P(B) = 0.65$, and $P(A \cup B) = 0.85$.

(a)   Calculate $P(A \cap B)$.

(b)   State with a reason whether events A and B are independent.

(c)   State with a reason whether events A and B are mutually exclusive.

(Total 6 marks)