



- Notes :
1. Solve all questions.
 2. Selecting multiple answers for the same question is considered incorrect and no marks will be awarded.
 3. All questions carry equal marks.

1. Solve the following MCQs **any ten**.

- i) The number of possible outcomes, when the coin is tossed 4 times- 2
 - a) 4
 - b) 8
 - c) 16
 - d) 32
- ii) If $P(A \cup B) = 0.75$ and $P(A \cap B) = 0.15$ then $P(A^c) + P(B^c) =$ 2
 - a) 0.9
 - b) 0.6
 - c) 1.25
 - d) 1.1
- iii) Let A and B be two events such that $P(A^c) = 0.4$ and $P(A \cap B) = 0.2$ then $P(A \cap B^c) =$ 2
 - a) 0.4
 - b) 0.2
 - c) 0.6
 - d) 0.8
- iv) If $P(A) = 0.4$, $P(B) = 0.7$ and $P(B | A) = 0.6$ then $P(A \cup B) =$ 2
 - a) 0.46
 - b) 0.86
 - c) 0.76
 - d) 0.54
- v) Find $P(E | F)$, where E: no tail appears, F: no head appears, when two coins are tossed in the air. 2
 - a) 0
 - b) $1/2$
 - c) 1
 - d) None
- vi) If A, B and C are mutually exclusive and exhaustive events such that $P(B) = \frac{3}{2}P(A)$ and $P(C) = \frac{1}{2}P(B)$ then $P(A) =$ 2
 - a) $5/14$
 - b) $5/13$
 - c) $4/11$
 - d) $4/13$
- vii) If X represents the outcome when a fair die is rolled then $E[X] =$ 2
 - a) $2/7$
 - b) $7/2$
 - c) $3/7$
 - d) $1/7$
- viii) If X is a random variable with $\text{Var}(x) = 2$ then $\text{Var}(2x + 3) =$ 2
 - a) 3
 - b) 8
 - c) 5
 - d) 7

