1. If E_1, E_2,…E_n are equally likely events then probability

   $P(At\ least\ one\ of\ the\ event\ happen)$ is

(a) Complement of $P(Exactly\ one\ of\ the\ event\ happen)$

(b) Complement of $P(All\ event\ happen)$

(c) Complement of $P(None\ event\ happen)$

(d) All of the above are correct

ANS: (C)

2. If E_1, E_2,…E_n are equally likely events then probability $P(None\ of\ the\ event\ happen)$ is

(a) Complement of $P(At\ least\ one\ of\ the\ event\ happen)$

(b) Complement of $P(All\ event\ happen)$

(c) Complement of $P(None\ event\ happen)$

(d) All of the above are correct

ANS: (A)

3. If an event E happen M times in N trials then probability of an event E is defined by

(a) $P(E) = \lim_{N\to\infty} \frac{M}{N}$

(b) $P(E) = \lim_{N\to\infty} \frac{N}{M}$

(c) $P(E) = \lim_{N\to-\infty} \frac{M}{N}$

(d) $P(E) = \lim_{N\to-\infty} \frac{N}{M}$

For A and B two arbitrary events consider the statements:

(i) If A and B are independent then A and B may be disjoint events
(ii) If A and B are disjoint events then A and B may be independent
(a) Only statement (i) is correct
(b) Only statement (ii) is correct
(c) Both statements (i) and (ii) are correct
(d) Both statement (i) and (ii) are not correct

ANS: C

Probability of the event that the sum of numbers appeared on throw of two dice as 1 is

(a) $\frac{1}{36}$
(b) $\frac{1}{3}$
(c) $\frac{1}{2}$
(d) 0

ANS: D

Four cards are drawn at random from a pack of 52 cards then the probability that they are two kings and two queens is

(a) $\frac{{}^{4}_{2}C.{}^{4}_{2}C}{{}^{52}_{2}C}$ $(b)\ \frac{{}^{4}_{2}C.{}^{4}_{2}C}{{}^{52}_{1}C}$ $(c)\ \frac{{}^{4}_{2}C.{}^{4}_{2}C}{{}^{52}_{3}C}$ $(d)\ \frac{{}^{4}_{2}C.{}^{4}_{2}C}{{}^{52}_{4}C}$

ANS: D

If n persons are seated on the distinct chairs around the table then the probability of two specific person sit together is

(a) $\frac{1}{(n+1)}$ $(b)\ \frac{2}{(n+1)}$ $(c)\ \frac{1}{(n-1)}$ $()\ \frac{2}{(n-1)}$

ANS: D

Multiplication theorem of probability is

(a) $P(A \cap B) = P(A)P(B)$

(b) $P(A \cap B) = P(A)P(B|A)$

(c) $P(A \cap B) = P(A)P(A|B)$

(d) $P(A \cap B) = P(A)/P(B)$

ANS: B

Relation between probability and distribution function is

(a) $P(a \leq X \leq b) = F(b) - F(a) + P(X = b)$

(b) $P(a \leq X \leq b) = F(b) - F(a) + P(X = a)$

(c) $P(a \leq X \leq b) = F(b) - F(a) - P(X = a)$

(d) $P(a \leq X \leq b) = F(b) - F(a) - P(X = b)$

ANS: B

Select the correct statement.

(i) Random variable is a real valued function

(ii) Distribution function is a real valued function

(a) Statements (i) and (ii) are correct

(b) Statements (i) and (ii) are not correct

(c) Only statements (i) is correct

(d) Only statements (ii) is correct

ANS: A

A, B and C are three mutually exclusive events. If $P(B) = \frac{3}{2}P(A)$ and $P(C) = \frac{1}{2}P(B)$ then P(A) is

(a) $\frac{1}{13}$ $(b)\frac{2}{13}$ $(c)\frac{3}{13}$ $(d)\frac{4}{13}$

ANS: D

If $P(A) = p, P(B) = q$ and $P(A \cap B) = r$ then $P(B|\bar{A})$ is

(a) $\frac{q-r}{1-p}$ $(b)\frac{q+r}{1-p}$ $(c)\frac{q-r}{1+p}$ $(d)\frac{q+r}{1+p}$

ANS: A

If A and B are independent events then select the correct statement

(i) $P(A \cap B) = P(A)P(B|A)$

(ii) $P(A \cap B) = P(A)P(B)$

(a) Only statement (i) is correct

(b) Only statement (ii) is correct

(c) Both statement (i) and (ii) are correct

(d) Both statements (i) and (ii) are not correct

ANS: C

Select the correct option for probability P.

(a) $P(A|B) \leq P(A)$

(b) $P(A|B) \geq P(A)$

(c) $P(A|B) = P(B|A)$

(d) $P(A|B) = P(A)P(B)$

ANS: A

If A and B are disjoint events then

(a) $P(A) \leq P(B)$ $(b)\ (\bar{A}) \leq P(B)$ $(c)\ \ P(A) \leq P(\bar{B})$ (d) All of the above

ANS: C

If A and B are events such that $P(A) = \frac{3}{4}$ and $P(B) = \frac{5}{8}$ then $P(A \cap B)$ lies in the interval

(a) $\left[\frac{1}{8}, \frac{5}{8}\right]$ $(b)\left[\frac{1}{8}, \frac{5}{8}\right]$ $(c)\left[\frac{3}{8}, \frac{5}{8}\right]$ $(d)\left[\frac{1}{8}, \frac{3}{8}\right]$

ANS: C

If $8: 5$ is against the favor of an event A and 4:3 is against the favor of the event B then probability of happening of at least one of A or B is

(a) $\frac{59}{91}$ $(b)\frac{32}{91}$ $(c)\frac{15}{91}$ $(d)\frac{20}{91}$

ANS: A

If $P(A) = P(A|B) = \frac{1}{4}$ and $P(B|A) = \frac{1}{2}$ then $P(\bar{A} \mid \bar{B})$ is

(a) $\frac{1}{4}$ $(b)\frac{1}{2}$ $(c)\frac{3}{4}$ $(d)\frac{3}{2}$

ANS: C

Select the correct statements:

(i) Probability mass function and discrete distribution function are always equal for a random variable

(ii) Probability mass function is defined for discrete random variable

(a) Only statement (i) is correct

(b) Only statement (ii) is correct

(c) Both statements (i) and (ii) are correct

(d) Both statements (i) and (ii) are not correct

ANS: B

Consider the statements:

(i) All the distribution functions are monotonic non-decreasing

(ii) Only discrete distribution function is monotonic non-increasing

(a) Only statement (i) is correct

(b) Only statement (ii) is correct

(c) Both statements (i) and (ii) are correct

(d) Both statements (i) and (ii) are not correct

ANS: A