

Chapter 07

PERMUTATIONS, COMBINATIONS AND INTRODUCTION TO PROBABILITY

PERMUTATIONS AND COMBINATIONS PORTION

1) If n is a positive integer then $n! =$

- A) $n(n+1)(n+2) \dots (n+n)$
- B) $n(n-1)(n-2) \dots 3.2.1$
- C) $\frac{n(n+1)}{2}$
- D) $\frac{n(n-1)}{2}$

Answer: B

2) If ${}^n P_2 = 20$ then $n =$

- A) 4
- B) 6
- C) 5
- D) 10

Answer: C

3) ${}^n C_r =$

- A) $\frac{n!}{(n-r)!}$
- B) $\frac{n!}{(n-r)!r!}$
- C) $\frac{n!}{r!}$
- D) $\frac{r!}{(n-r)!}$

Answer: B

4) ${}^n P_r =$

- A) $\frac{n!}{r!}$
- B) $\frac{r!}{(n-r)!}$
- C) $\frac{n!}{(n-r)!}$
- D) $\frac{n!}{(n-r)!r!}$

Answer: C

5) ${}^n P_0 =$

- A) $n!$
- B) n
- C) 1
- D) 0

Answer: C

6) ${}^{10} P_2 =$

- A) 90
- B) 10
- C) 8
- D) 80

Answer: A

7) If ${}^n C_6 = {}^n C_{10}$ then $n =$

- A) 4
- B) 6
- C) 10
- D) 16

Answer: D

8) The number of words which can be formed out of the word "ASSASSINATION", when all the letters are used in each word are

- A) $\binom{13}{4,3,2,2,1,1}$
- B) $13!$
- C) $\frac{4!}{13!}$
- D) $\frac{13}{4!}$

Answer: A

9) The numbers of diagonals in ten sided figure is

- A) 10
- B) ${}^{10} C_2$
- C) ${}^{10} C_2 - 10$
- D) 45

Answer: C

10) The number of ways a hockey eleven can be selected out of 15 players if it includes a particular player.

- A) ${}^{15} C_{11}$
- B) ${}^{14} C_{11}$
- C) ${}^{14} C_{10}$
- D) ${}^{15} C_{10}$

Answer: C

11) ${}^5 P_0 =$

- A) 5
- B) 0
- C) 15
- D) 1

Answer: D

- A) 7
- B) 7!
- C) 49
- D) 59

Answer: B

12) The number of possible permutations of the letters of the word, "ADDING" having two D'S together.

- A) 5!
- B) 3!
- C) 4!
- D) 25

Answer: A

18) How many triangles can be formed by twelve points on a plane.

- A) 220
- B) 12!
- C) 1320
- D) 100

Answer: A

13) In how many ways can eight students be arranged in a row.

- A) 7!
- B) 5!
- C) 8!
- D) 4!

Answer: C

19) In how many ways can 6 different trees be planted in a circle of clockwise direction.

- A) 720
- B) 120
- C) 70
- D) 60

Answer: B

14) The number of words that can be formed from the letters of the word, "PAKPATTAN" are

- A) 9!
- B) 9C_7
- C) 9P_7
- D) $\frac{9!}{3!2!2!}$

Answer: D

20) Everybody in a room shakes hands with everybody else. The total number of handshakes is 66, then the total no of persons in the room is.

- A) 11
- B) 15
- C) 13
- D) 12

Answer: D

15) The number of words that can be formed from the letters of the word, "COMMITTEE" are

- A) 9P_9
- B) 9C_9
- C) $\frac{9!}{2!2!2!}$
- D) 9

Answer: C

21) How many subsets of 4 elements can be formed from the set {a,b,c,d,e}.

- A) 5
- B) 4
- C) 0
- D) None of these

Answer: A

16) The three digit numbers that can be formed from 0, 1, 2, 3, 4, when no digit is repeated are

- A) 48
- B) 36
- C) 24
- D) 10

Answer: A

22) $\frac{{}^nP_r}{r!} = \underline{\hspace{2cm}}$

- A) $n! \cdot {}^nC_r$
- B) nC_r
- C) $\frac{(n-1)!}{r!}$
- D) $n!$

Answer: B

17) The number of distinct permutations from the letters of the word, "ARTICLE" using all the letters are

23) $\binom{n}{r-1} + \binom{n}{r} = \binom{n+1}{r}$, this rule was invented by.

- A) Euler
- B) Archimedes
- C) Pascal
- D) none of these

Answer: C

- A) 8
- B) $\frac{1}{8}$
- C) $\frac{1}{2}$
- D) $\frac{3}{8}$

Answer: B

PROBABILITY PORTION

1) For any event A

- E) $0 \leq P(A) \leq 1$
- F) $-1 \leq P(A) \leq 1$
- G) $-2 \leq P(A) \leq 2$
- H) $0 \leq P(A) \leq 2$

Answer: A

14) A die is rolled once, the probability of getting the number greater than 6 is.

- E) 2
- F) 1
- G) 0.5
- H) 0

Answer: D

15) Two dice are rolled once, the probability of obtaining the same faces (or whose difference is zero) is.

- A) $\frac{1}{3}$
- B) $\frac{1}{6}$
- C) $\frac{5}{6}$
- D) $\frac{1}{2}$

Answer: B

16) The events A & B are said to be disjoint if $A \cap B$ is

- A) ϕ
- B) A
- C) B
- D) $A \cup B$

Answer: A

17) A dice is thrown then the probability to get an even number is

- A) $\frac{4}{5}$
- B) $\frac{3}{5}$
- C) $\frac{2}{3}$
- D) $\frac{1}{2}$

Answer: D

18) A slip is picked out of 8 slips numbered from 1 to 8 then the probability to get number 4 is

19) A coin is tossed once, the probability of getting a head & a tail is.

- E) 0
- F) $\frac{1}{4}$
- G) $\frac{1}{2}$
- H) $\frac{1}{6}$

Answer: A

20) Two coins are tossed together once, the probability of getting two head is.

- E) $\frac{1}{4}$
- F) $\frac{1}{2}$
- G) $\frac{1}{8}$
- H) 0

Answer: C

21) Teams A & B are playing football match. The probability that A will win is $\frac{4}{13}$ that of B is $\frac{5}{13}$. The probability that the match will end in a draw is

- A) $\frac{5}{13}$
- B) $\frac{4}{13}$
- C) $\frac{9}{13}$
- D) $\frac{3}{13}$

Answer: B

22) A & B are mutually exclusive events the $P(A \cup B) =$

- A) $P(A) \cup P(B)$
- B) $P(A) + P(B)$
- C) $P(A) + P(B) - P(A \cap B)$
- D) $P(A) - P(B)$

Answer: B

23) If $A \subset S$ then $P(A') =$

- A) $1 + P(A)$
- B) $1 - P(A)$
- C) $\frac{1}{P(A)}$
- D) $P(A)$

Answer: B

24) The probability that Aslam was not born in a month which begins with the letter "J" is $\frac{3}{4}$, then the probability that he was born in January, June, July is

- A) $\frac{5}{4}$
- B) $\frac{3}{4}$
- C) $\frac{1}{4}$
- D) $\frac{7}{4}$

Answer: C

25) The probability that Mr. X will clear the exam is $\frac{1}{5}$ & that of Mr. Y is $\frac{1}{2}$. The probability that no one will clear the exam is.

- A) $\frac{2}{5}$
- B) $\frac{1}{5}$
- C) $\frac{11}{50}$
- D) $\frac{1}{6}$

Answer: A

26) If $P(A) = \frac{1}{3}$, $P(B) = \frac{1}{3}$ and $P(A \cap B) = \frac{1}{9}$. Then the value of $P(A \cup B)$ is.

- A) $\frac{3}{7}$
- B) $\frac{5}{9}$
- C) $\frac{1}{2}$
- D) $\frac{1}{9}$

Answer: B