Recursion is a method in which the solution of a problem depends on _____
a) Larger instances of different problems
b) Larger instances of the same problem
c) Smaller instances of the same problem
d) Smaller instances of different problems

Ans c

Which of the following problems can't be solved using recursion?
a) Factorial of a number
b) Nth fibonacci number
c) Length of a string
d) Problems without base case

Ans d

Recursion is similar to which of the following?
a) Switch Case
b) Loop
c) If-else
d) if elif else

Ans b

The data structure used to implement recursive function calls _____
a) Array
b) Linked list
c) Binary tree
d) Stack

Ans d

Running out of memory may occur due to

a) Non-recursive call

b) Recursive function call
c) Use of more extern variable
d) None of these

Ans b

What is the output of the following code?

```
void my_        _       (int n)


    if(n ==   )

    return;

    printf("%   ",n);
```

```
    my_          _          (n-1);
}
int main()


    my_          _          (10);
    return 0;
}
```

a) 10
b) 1
c) 10 9 8 1 0
d) 10 9 8 1

Ans d

How many even 4 digit whole numbers are there?
a) 1358
b) 7250
c) 4500
d) 3600

Ans c

In a multiple-choice question paper of 15 questions, the answers can be A, B, C or D. The number of different ways of answering the question paper are _____
a) 65536 x 4^7
b) 194536 x 4^5
c) 23650 x 4^9
d) 11287435

Ans a

How many words with seven letters are there that start with a vowel and end with an A? Note that they don't have to be real words and letters can be repeated.
a) 45087902
b) 64387659
c) 12765800
d) 59406880

Ans d

Neela has twelve different skirts, ten different tops, eight different pairs of shoes, three different necklaces and five different bracelets. In how many ways can Neela dress up?
a) 50057
b) 14400
c) 34870
d) 56732

Ans b

The code for a safe is of the form PPPQQQQ where P is any number from 0 to 9 and Q represents the letters of the alphabet. How many codes are possible for each of the following cases? Note that the digits and letters of the alphabet can be repeated.
a) 874261140
b) 537856330
c) 549872700
d) 456976000

Ans d

A head boy, two deputy head boys, a head girl and 3 deputy head girls must be chosen out of a student council consisting of 14 girls and 16 boys. In how many ways can they are chosen?
a) 98072
b) 27384
c) 36428
d) 44389

Ans b

A drawer contains 12 red and 12 blue socks, all unmatched. A person takes socks out at random in the dark. How many socks must he take out to be sure that he has at least two blue socks?
a) 18
b) 35
c) 28
d) 14

Ans d

The least number of computers required to connect 10 computers to 5 routers to guarantee 5 computers can directly access 5 routers is _____
a) 74
b) 104
c) 30
d) 67

Ans c

When four coins are tossed simultaneously, in _____
two of the coins will turn up as heads.
a) 17
b) 28
c) 11
d) 43

Ans c

Minimum number of individual shoes to be picked up from a dark room (containing 10 pair of shoes) if we have to get atleast one proper pair.

a) 3

b) 11

c) 10

d) 20

Ans b

If $16P_{r-1} : 15P_{r-1} =$: 7 then find r.
a) 10
b) 12
c) 7
d) 8

Ans a

In a colony, there are 55 members. Every member posts a greeting card to all the members. How many greeting cards were posted by them?
a) 990
b) 890
c) 2970
d) 1980

Ans c

Find the number of ways of arranging the letters of the words DANGER, so that no vowel occupies odd place.
a) 36
b) 48
c) 144
d) 96

Ans c

In how many ways can we select 6 people out of 10, of which a particular person is not included?
a) $^{10}C_3$
b) $^{9}C_5$
c) $^{9}C_6$
d) $^{9}C_4$

Ans c

Find the number of rectangles and squares in an 8 by 8 chess board respectively.
a) 296, 204
b) 1092, 204
c) 204, 1092
d) 204, 1296

Ans b

Consider the recurrence relation a_1= , a_n= + $_{n-1}$. The value of a_{64} is _____
a) 10399
b) 23760
c) 75100
d) 53700

Ans a

Find the value of a_4 for the recurrence relation a_n= $_{n-1}$+ , with a_0= .
a) 320
b) 221
c) 141
d) 65

Ans c

Determine the solution for the recurrence relation b_n= $_{n-1}$−12b_{n-2} with b_0= $_1$= .
a) 7/2* ^{n}−1/2* ^{n}
b) 2/3* ^{n}-5* ^{n}
c) 4!* ^{n}
d) 2/8^n

Ans a

Recurrence equation formed for the tower of hanoi problem is given by _____
a) T(n) = (n-1)+
b) T(n) = (n/2)+
c) T(n) = (n-1)+
d) T(n) = (n/2)+

Ans c

What is the objective of tower of hanoi puzzle?
a) To move all disks to some other rod by following rules
b) To divide the disks equally among the three rods by following rules
c) To move all disks to some other rod in random order
d) To divide the disks equally among three rods in random order

Ans a

Determine the solution of the recurrence relation F_n= $_{n-1}$ − 25F_{n-2} where F_0= F_1= .
a) a_n = * $^{n-1}$
b) a_n = * ^{n}−1/2* ^{n}
c) a_n = * ^{n}−3/4* $^{n+}$
d) a_n = * ^{n}−1/2* ^{n}

Ans b

In which of the following problems recurrence relation holds?

a) Optimal substructure

b) Tower of Hanoi

c) Hallmark substitution

d) Longest common subsequence

Ans b

A divide and conquer approach to solving a problem is useful when

a) We can break the problem into several sub problems that are similar to the original problems but smaller in size

b) The sub problems are overlapping so we don't have to solve them over and over again

c) The complexity is exponential to solve the entire problem

d) None of these

What is the sequence depicted by the generating series 4 + ^{2} + ^{3} + ^{5} + ^{6}+…?
a) 10, 4, 0, 16, 25,
b) 0, 4, 15, 10, 16, 25,
c) 4, 0, 15, 10, 25, 16,
d) 4, 10, 15, 25,

Ans c

What is the generating function for the sequence 1, 6, 16, 216, .?
a) (1+6x)x3
b) 1(1−6x)
c) 1(1−4x)
d) 1-6x^2

Ans b

What is the recurrence relation for the sequence 1, 3, 7, 15, 31, 63, ?
a) a_n = $_{n-1}$−2a_{n+}
b) a_n = $_{n-1}$−2a_{n-2}
c) a_n = $_{n-1}$−2a_{n-1}
d) a_n = $_{n-1}$−2a_{n-3}

Ans b

Find the sequence generated by 1/1−x^2−x^4.,assume that 1, 1, 2, 3, 5, 8, has generating function 1/1−x−x^2.
a) 0, 0, 1, 1, 2, 3, 5, 8,
b) 0, 1, 2, 3, 5, 8,
c) 1, 1, 2, 2, 4, 6, 8,
d) 1, 4, 3, 5, 7,

Ans a

Which one of the following problem types does inclusion-exclusion principle belong to?

a) Numerical problems
b) Graph problems
c) String processing problems
d) Combinatorial problems

Ans d

Which of the following is not an application of inclusion-exclusion principle?
a) Counting intersections
b) Graph coloring
c) Matching of bipartite graphs
d) Maximum flow problem

Ans d

Which of the following statement is incorrect with respect to generalizing the solution using the inclusion-exclusion principle?
a) including cardinalities of sets
b) excluding cardinalities of pairwise intersections
c) excluding cardinalities of triple-wise intersections
d) excluding cardinalities of quadraple-wise intersections

Ans c

There are 70 patients admitted in a hospital in which 29 are diagnosed with typhoid, 32 with malaria, and 14 with both typhoid and malaria. Find the number of patients diagnosed with typhoid or malaria or both.
a) 39
b) 17
c) 47
d) 53

Ans c

The need for inferential statistical methods derives from the need for _____.

a) Population

b) Association

c) Sampling

d) Probability

Ans c

Sampling is simply a process of learning about the _____
sample drawn from it.

a) Census b) Population c) Group d) Area

Ans b

When an investigator uses the data which has already been collected by others, such

data is called _____ _____.

a) Primary data b) Collected data c) Processed data d) Secondary data

Ans d

A summary measure that describes any given characteristic of the population is known as a _____.

a) Parameter b) Information c) Inference d) Statistics

Ans a

_____
purpose of a specific inquiry or study.

a) Secondary data b) Primary data c) Statistical data d) Published data

Ans b

Find the mode of the call received on 7 consecutive day 11,13,13,17,19,23,25

a) 11

b) 13

c) 17

d) 23

Ans b

Find the mode and median of the 9 consecutive number 12,7,8,14,21,23,27,7,11

a) 12,9
b) 7,9
c) 7,12
d) 11,9

Ans c

What are the variables whose calculation is done according to the weight, height, and length known as?

a) Flowchart variables

b) Discrete variables

c) Continuous variables

d) Measuring variables

Answer: C

In a moderately symmetric distribution mean, median and mode are connected by:

a) Mode = – 3 mean

b) Mode = – 4 mean

c) Mode = – 2 mean

d) Mode = – 4 mean

Answer: C

The mean of 5 observations is 4.4 and their variance is 8.24. If 3 of the observations are 1, 2, 6. The other 2 observations are:

a) 9, 4 b) 7, 8 c) 6, 5 d) 4, 8

Ans a

Find the Quartile deviation for the distribution:

Class Interval : 0 – 15 15 -30 30 – 45 45 – 60 60 – 75 75 – 90 90 – 105

F : 8 26 30 45 20 17 4

a) 15.44 b) 16.22 c) 14.55 d) 17.33

Ans a

Find the value of third quartile if the values of first quartile and quartile deviation are 104 and 108 respectively. 25 a) 130 b) 140 c) 120 d) 110

Ans b

Find the Mean deviation from the Mean for the following

Class Interval: 0 – 10 10 – 20 20 – 30 30 – 40 40 -50 50 – 60 60 – 70

Frequency: 8 12 10 8 3 2 7

a) 14 b) 12 c) 15 26 d) 16 35

Ans d

Find the range for the following data 14, 16, 16, 14, 22, 13, 15, 24, 12, 23, 14, 20, 17, 21, 22, 18, 18, 19, 20, 17, 16, 15, 11, 12, 21, 20, 17, 18, 19, 23.

a) 13 b) 12 c) 14 d) 16

Ans a

. The variance of 15 observations is 4. If each observation is increased by 9, the variance of the resulting observation is: a) 2 b) 3 c) 4 d) 5

Ans c

Compute the mode for the following frequency distribution:

Size of items: 0-4 4-8 8-12 12-16 16-20 20-24 24-28 28-32 32-36 36-40

Frequency: 5 7 9 17 12 10 6 3 1 0

a) 32.66 b) 28.43 21 c) 24.87 d) 31.65

Ans a

A student obtained the mean and the standard deviation of 100 observations as 40 and 5.1. It was later found that one observation was wrongly copied as 50, the correct figure being 40. Find the correct mean and the S.D.

a) Mean = .8, S.D =) Mean = .9, S.D =) Mean = .9, S.D =) None

Ans b

The most commonly used device of presenting business and economic data is:

a) Pie diagrams b) Pictograms c) Bar diagrams d) Line diagrams

Ans c

The number of observations in a particular class is called:

a) Width of the class b) Class mark c) Frequency d) None of the above

Ans c

Which of the following criterion is not used for decision-making under uncertainty?

(a) maximin

(b) maximax

(c) minimax

(d) minimize expected loss

Ans d
The decision-maker's knowledge and experience may influence the decision-making process wi.en using

(a) maximax

(b) maximax regret

(c) realism

(d) maximin

Ans c
Probability lies between:
(a) -l and + (b) 0 and l (c) 0 and n (d) 0 and ∞
Ans b

A set of all possible outcomes of an experiment is called:
(a) Combination (b) Sample point (c) Sample space (d) Compound event
Ans c

The events having no experimental outcomes in common is called:
(a) Equally likely events (b) Exhaustive events (c) Mutually exclusive events (d) Independent events
Ans c

The probability associated with the reduced sample space is called:
(a) Conditional probability (b) Statistical probability (c) Mathematical probability (d) Subjective probab
Ans a

If A is any event in S and its complement, then P( ) is equal to: a) l (b) 0 (c) l- A (d) l - P(A)

Ans d
A letter is chosen at random from the word "Statistics". The probability of getting a vowel is:
(a) 1/10 (b) 2/10 (c) 3/10 (d) 4/10
Ans c

If n coins are tossed, the possible outcomes are:
(a) n (b) 2 (c) 2^n (d) All of them
Ans c

If P(B/A) = .50 and P(A∩B) = .40, then p(A) will be equal to:
(a) 0.40 (b) 0.50 (c) 0.80 (d) 1

Ans c

When A and B are two non-empty and mutually exclusive events, then:

(a) P(A∪B) = (A).P(B) (b) P(A∪B) = (A) + (B) (c) P(A∩B) = (A).P(B) (d) P(A∩B) = (A)+ (B)

Ans b

If A and B are independent events, then:
(a) P(A∪B) = (A).P(B) (b) P(A∩B) = (A).P(B) (c) P(A∩B) = (A)+ (B) (d) P(A) = (B)
Ans b

What is the probability of getting an even number when a dice is thrown?

a. 1/6
b. 1/2
c. 1/3
d. 1/4

Ans b

What will be the probability of losing a game if the winning probability is 0.3?

a. 0.5
b. 0.6
c. 0.7
d. 0.8

Ans c

If a number is selected at random from the first 50 natural numbers, what will be the

probability that the selected number is a multiple of 3 and 4?

a. 7/50
b. 4/25
c. 2/25
d. None of the above

Ans c

Naina receives emails that consists of 18% . The spam filter is 93% reliable i.e., 93% % are correctly labelled as spam. If a mail marked spam by her spam filter, determine the probability that it is really spam.
a) 50%
b) 84%
c) 39%
d) 63%

Ans a

A single card is drawn from a standard deck of playing cards. What is the probability that the card is a face card provided that a queen is drawn from the deck of cards?
a) 313
b) 13
c) 413
d) 152

Ans b

A family has two children. Given that one of the children is a girl and that she was born on a Monday, what is the probability that both children are girls?
a) 1327
b) 2354
c) 1219
d) 4358

Ans a

A and B are two events such that P(A) = .4 and P(A ∩ B) = .2 Then P(A ∩ B) is equal to

_____

a) 0.4

b) 0.2

c) 0.6

d) 0.8

Ans a

The binomial distribution depends on which of the following?

a. Mean and standard deviation
b. Sample size and probability of success
c. Standard deviation and number of successes
d. Mean and probability of success

Ans: B

The normal distribution depends on which of the following?

a. Mean and standard deviation
b. Sample size and probability of success
c. Standard deviation and number of successes
d. Mean and probability of success

Ans: A

Which of the following mentioned standard Probability density functions is applicable to discrete Random Variables?

a) Gaussian Distribution

b) Poisson Distribution

c) Rayleigh Distribution

d) Exponential Distribution

Ans: b

A table with all possible value of a random variable and its corresponding probabilities is called _____

a) Probability Mass Function
b) Probability Density Function
c) Cumulative distribution function
d) Probability Distribution

Ans: d

Stochastic process are

a) Random in nature
b) Are function of time
c) Random in nature and are a function of time
d) None of the mentioned

Ans: c

Stochastic processes are
a) Strict sense stationary process
b) Wide sense stationary process
c) All of the mentioned
d) None of the mentioned

Ans: b

The expected value of a random variable is its _____
a) Mean
b) Standard Deviation
c) Mean Deviation
d) Variance

Ans: a

Which method is much better and efficient?
a) Vector quantization
b) Scalar quantization
c) Vector & Scalar quantization
d) None of the mentioned

Ans: a