

Programming Assignment

1. Write a program which prints the largest & smallest number out of three given numbers.

2. Write a program to print the table of any number n .

3. Write a program which prints the Fibonacci Series of n numbers. Ex: If $n = 6$ then the series will be =1,1,2,3,5,8.

4. Write a number which prints all the Fibonacci numbers in between a & b , where $b > a$. Ex: If $a = 4$ & $b = 14$ then the series will be =5,8,13.

5. Write a program to check whether a number is prime or not.

6. Write a program to print the series of first n prime numbers.

7. Write a program which prints prime numbers in between a & b where $b > a$.

8. Write a program which calculates Greatest Common Divisor (G.C.D.) of two numbers.

9. Write a program which calculates the Lowest Common Divisor (L.C.M.) of two numbers.

10. Write a program which prints the following pattern :

```
*
* *
* * *
* * * *
* * * * *
* * * * * *
```

11. Write a program which prints the following pattern :

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
```

12. Write a program which prints the following pattern :

```
6
6 5
6 5 4
6 5 4 3
6 5 4 3 2
6 5 4 3 2 1
```

13. Write a program which prints the following pattern :

```
      *
     * *
    * * *
   * * * *
  * * * * *
 * * * * *
* * * * *
```

14. Write a program which prints the following pattern :

```
      1
     1 2
    1 2 3
   1 2 3 4
  1 2 3 4 5
 1 2 3 4 5 6
```

15. Write a program which prints the following pattern :

```
      1
     1 2 1
    1 2 3 2 1
   1 2 3 4 3 2 1
  1 2 3 4 5 4 3 2 1
 1 2 3 4 5 6 5 4 3 2 1
```

16. Write a program which prints the following pattern :

```
      1
     1 2 1
    1 2 3 2 1
   1 2 3 4 3 2 1
  1 2 3 4 5 4 3 2 1
 1 2 3 4 5 6 5 4 3 2 1
 1 2 3 4 5 4 3 2 1
 1 2 3 4 3 2 1
```

1 2 3 2 1
1 2 1
1

17. Write a function which convert decimal number into binary using recursion concept. Call this function into main program.

18. Write a function which convert binary number into decimal using recursion concept. Call this function into main program.

19. Write a *function power(a,x), to calculate the value of a raised to x. Call this function into main program.*

20. Write a function to find the factorial of a number using recursion concept. Call this function into main program.

21. Write a function which read an integer number of n digits & then separate each digit & also calculates the sum.

Ex. If input is 9172 then the output should be like as shown below :

9 1 7 2
Sum = 19

22. Write a program to find out whether a year(entered in 4-digit number representing it) is a leap year or not. Hint : A leap year when divided by 4 has 0 remainder.

23. Write a program which reads a line of text & reverse that using recursion.

24. Write a program which finds out all three numbers a, b, c from 1 to n such that $a^2 + b^2 = c^2$.

25. Write a program which swaps two numbers using function(use call by reference concept).

26. Write a program to swap two variables without using third variable.

27. Write a program to print out all Armstrong numbers from 1 to n . If sum of cubes of each digit of the number is equal to the number itself, then the number is called an Armstrong number. Ex. $153 = (1*1*1) + (5*5*5) + (3*3*3)$.

28. Write a program to print an array of n numbers & then find out that whether a given number is present in the array or not.

29. Write a program which read an array & then sort that array in ascending order using any sorting method.

30. Write a program which first read an array & then calculates sum of all the numbers.

31. Write a program which read an array & then reverse that array & then traverse it.

32. Write a program which read a 2-D array of numbers & then find out whether a given number is present or not in that given array.

33. Write a program which read a 2-D array of numbers & then sort the array row-wise.

34. Write a program which read a 2-D array of numbers & then sort the array column-wise.

35. Write a program which read a 2-D array & then calculate the sum of each column & row.

36. Write a program which read a string & then calculate the length of that string using function.

37. Write a program which read two strings & then compare both.

38. Write a program which read two matrices & then multiply them & display the result.

39. Write a program to read a matrix & then print the transpose of that matrix.

40. Write a program to read two matrices & then find out their sum & difference.

41. Write a program to read the BIO-Data of students studying in a class & then print the BIO-Data of those students whose marks are more than 70%. The fields of the BIO-Data are : Name, Address, Semester, Branch, TotalMarks.

42. Write a program to read the BIO-Data of students studying in a class & then print the BIO-Data of all the students according to descending order of their marks. The fields of the BIO-Data are : Name, Address, Semester, Branch, TotalMarks.
43. Write a program which reads the BIO-Data of patients of a hospital & then print the BIO-Data of those patients who have viral fever. The fields of the BIO-Data are : Name, Address, DateOfAdmitting, NatureOfIllness.
44. Write a program which reads the BIO-Data of employees which are in a company & then find out the BIO-Data of an employee whose IDNo. is AH02C. The fields of the BIO-Data will be : IDNo, Name, Address, Designation, Salary.
45. Write a program which reads the BIO-Data of employees which are in a company & print the BIO-Data of those employees whose salary is more than 20,000. The fields of the BIO-Data will be : IDNo, Name, Address, Designation, Salary.
46. Write a program which read bio data of students create a link list for that and then do the following function
- Print those student whose total marks are greater than 1000.
 - Print the bio data according to ascending numbers of total marks.
 - Print the bio data of a student whose roll number is given.
47. Write a program which read two link list. Sort these and then merge them in such a way that final link list is in sorted form.
48. Write a program which read a link list and then delete an element.
49. Write a program which implement stack using link list.(Dynamic implementation of stack).
50. Write a program which implement queue using link list. (Dynamic implementation of queue)
51. Using pointers create binary search tree and then perform following operation on that:
- Deletion of a node.
 - Inorder traversing.

- c) Preorder traversing.
- c) Postorder traversing.

52. Write a program which creates the file for Bio-Data of students & then perform the following operation onto file :

- a) Search a student whose roll no. is given
- b) Print the Bio-Data of student whose marks are highest
- c) Delete the Bio-Data of students whose marks are less than 30.