Q1 What does the keyword "void" indicate in a function declaration in C?

A) The function returns a value

B) The function takes no arguments

C) The function returns no value *(Correct option)

D) The function takes a value

Q2 Which of the following data types in C can store decimal values?

A) int

B) char

C) float *(Correct option)

D) None of the Above

Q3 What is the value of the expression (5 > 2) in C?

A) False

B) True

C) 0

D) 1 *(Correct option)

Q4 What is the difference between a while loop and a for loop in C?

A) While loop checks the condition before executing the loop, for loop checks after executing the loop.

B) While loop executes the loop an undefined number of times, for loop a defined number of times. *(Correct option)

C) While loop executes the loop a defined number of times, for loop an undefined number of times.

D) While loop checks the condition after executing the loop, for loop checks before executing the loop.

Q5 What is the output of the following code in C?

```
int x = 5;
printf("%d", x++);
```

A) 5 *(Correct option)

B) 6

C) 10

D) 11

Q6 What is the data type of a variable in C language?

A) int

B) float

C) char

D) All of the above *(Correct option)

Q7 What is the use of a semicolon in C language?

A) To denote the end of statements *(Correct option)

B) To denote the end of a function

C) To denote the end of a program

D) None of the above

Q8 What is the purpose of the main() function in C language?

A) To initialize variables

B) To start the flow of a program *(Correct option)

C) To call other functions

D) All of the above

Q9 What is the difference between an if statement and a switch statement in C language?

A) If statements can only be used for simple conditions, switch statements can handle complex conditions

B) If statements can only handle one condition, switch statements can handle multiple conditions

C) If statements can handle multiple conditions, switch statements can only handle one condition *(Correct option)

D) None of the above

Q10 What is the purpose of a loop in C language?

A) To execute a set of statements multiple times *(Correct option)

B) To check for conditions

C) To store data

D) None of the above

Q1 What is the syntax for declaring an array in C language?

A) int array[10]; *(Correct option)

B) float array;

C) char array[];

D) None of the above

Q2 What is the use of a pointer in C language?

A) To store the address of a variable *(Correct option)

B) To store the value of a variable

C) To store data in an array

D) None of the above

Q3 What is the purpose of a function in C language?

A) To break a program into smaller modules

B) To perform specific tasks *(Correct option)

C) To store data

D) All of the above

Q4 What is the difference between a while loop and a do-while loop in C language?

A) While loops check conditions before execution, do-while loops check conditions after execution *(Correct option)

B) While loops only execute once, do-while loops execute multiple times

C) While loops cannot handle complex conditions, do-while loops can handle complex conditions

D) None of the above

Q5 What is the difference between a local variable and a global variable in C language?

A) Local variables are only accessible within a function, global variables are accessible throughout the program *(Correct option)

B) Global variables are only accessible within a function, local variables are accessible throughout the program

C) Local and global variables are the same

D) None of the above

Q6 What is the value of an uninitialized variable in C language?

A) 0

B) Garbage value *(Correct option)

C) NULL

D) None of the above

Q7 What is the purpose of a break statement in C language?

A) To skip an iteration in a loop

B) To exit a loop *(Correct option)

C) To exit a function

D) All of the above

Q8 What is the syntax for a while loop in C language?

A) while(condition){}*(Correct option)

B) do{} while(condition)

C) for(;;){}

D) None of the above

Q9 What is the purpose of a continue statement in C language?

A) To skip an iteration in a loop *(Correct option)

B) To exit a loop

C) To exit a function

D) All of the above

Q10 What is the difference between a pre-increment and a post-increment operator in C language?

A) Pre-increment increments the value before use, post-increment increments the value after use *(Correct option)

B) Post-increment increments the value before use, pre-increment increments the value after use

C) Both pre-increment and post-increment are the same

D) None of the above

11.What is the difference between a for loop and a while loop in C?

a) There is no difference, both for and while loops are the same

b) The for loop allows you to specify the number of times the loop will run, while the while loop runs until a certain condition is met *(Correct option)

c) The while loop allows you to specify the number of times the loop will run, while the for loop runs until a certain condition is met

d) The while loop is faster than the for loop

12. What is the purpose of parameters in a function in C?

a) To specify the return value of the function

b) To receive input data and pass it to the function *(Correct option)

c) To perform mathematical operations

d) To control the flow of the program

13. What will be the output of the following code?

```
int x = 10;
int *ptr1 = &x;
int *ptr2 = ptr1;
*ptr1 = 20;
printf("%d %d", *ptr1, *ptr2);
```

a) 20 20 *(Correct option)

b) 20 10

c) 10 20

d) 10 10

14. What will be the output of the following code?

```
int arr[5] = {10, 20, 30, 40, 50};
printf("%d", *(arr+3));
```

a) 10

b) 20

c) 30

d) 40 *(Correct option)

15. What will be the output of the following code?

```
char string1[10] = "WelcomeTo”;
char string2[10] = "ChitkaraUniversity";
strncat(string1,string2, 8);
```

printf("%s", string1);

a) ' Welcome'

b) ' WelcomeTo'

c) ' WelcomeToChitkaraUniversity'

d) " WelcomeToChitkara" *(Correct option)

Q16. Chaitanya Mom used to give him pocket money every day based on his performance throughout the day. This pocket money can be negative or positive based on his performance. If it is negative that means Chaitanya has to give money back to his mom. If the pocket money is positive that means he performs well today and his mom will give him some money. Your task is to find the maximum pocket money Chaitanya has at any contiguous day.

Input:

Given an integer number N representing the number of days.

In the next line, given an array A of size N, where A[i] is the pocket money at the end of each day.

Output:

Print the maximum pocket money Chaitanya has at the end of Nth day.

```
#include<stdio.h>
int max(int num1, int num2)
{
   return (num1 > num2 ) ? num1 : num2;
}
int solve(int A[],int n1) {
   int ans =A[0],x=A[0];
   for(int i=1;i<n1;i++)
   {
      x = max(A[i],x+A[i]);
      ans = max(x,ans);
   }
   return ans;
}
int main()
{
   int n;
   scanf("%d",&n);
```

```
  int a[n];
  for(int i=0;i<n;i++)
  {
     scanf("%d",&a[i]);
  }
  printf("%d",solve(a,n));
   return 0;
}
```

Q17. Suppose you are given a number in binary form, your job is to convert the binary number to decimal form.

Input:

Input n, is the binary number (0 and 1 only). Example 1110
n can be entered maximum to 4 digits

Output:
Given n, output is a decimal number. example 14

Solution:

```
#include <stdio.h>


void main()
{
   int  num, binary_val, decimal_val = 0, base = 1, rem;


   printf("Enter a binary number(1s and 0s) \n");
   scanf("%d", &num);
   binary_val = num;
   while (num > 0)
   {
      rem = num % 10;
      decimal_val = decimal_val + rem * base;
      num = num / 10 ;
      base = base * 2;
   }
   printf("The Binary number is = %d \n", binary_val);
   printf("Its decimal equivalent is = %d \n", decimal_val);
}
```

Q18 **Problem Statement: Write a function in C to find the longest common prefix in a set of strings.**

Sample Input:

["flower", "flow", "flight"] \\ Number of elements in the array

Sample Output:

The longest common prefix is: "fl"

Solution:

```
#include <stdio.h>
#include <string.h>
#include <stdbool.h>

char* longestCommonPrefix(char** strs, int strsSize) {
  if (strsSize == 0) {
    return "";
  }
  int i, j;
  int minLen = INT_MAX;
  for (i = 0; i < strsSize; i++) {
    int len = strlen(strs[i]);
    if (len < minLen) {
      minLen = len;
    }
  }
  char prefix[minLen + 1];
  for (i = 0; i < minLen; i++) {
    char current = strs[0][i];
    for (j = 1; j < strsSize; j++) {
      if (strs[j][i] != current) {
        break;
      }
    }
    if (j == strsSize) {
      prefix[i] = current;
    } else {
      break;
    }
  }
  prefix[i] = '\0';
  char *result = prefix;
  return result;
}

int main() {
  int strsSize;
  printf("Enter the number of strings: ");
  scanf("%d", &strsSize);
  char *strs[strsSize];
  for (int i = 0; i < strsSize; i++) {
    strs[i] = malloc(100 * sizeof(char));
```

```
    printf("Enter string %d: ", i + 1);
    scanf("%s", strs[i]);
  }
  char *result = longestCommonPrefix(strs, strsSize);
  printf("The longest common prefix is: %s\n", result);
  return 0;
}
```

11.What type of loop is used when you want a piece of code to repeat an unknown number of times and the number of iterations is determined by the condition being checked?

a) for loop

b) while loop *(Correct option)

c) do-while loop

d) repeat loop

12. What is the purpose of a function in C programming?

a) To perform a set of operations only once

b) To simplify complex code by breaking it down into smaller, reusable blocks *(Correct option)

c) To control the flow of the program

d) To perform mathematical operations

13. What will be the output of the following code?

```
int x = 10;

int y = 20;

int *ptr1 = &x;

int *ptr2 = &y;

ptr1 = ptr2;

printf("%d %d", *ptr1, *ptr2);
```

a) 10 20

b) 20 20 *(Correct option)

c) 10 10

d) 20 10

14. What will be the output of the following code?

```
int arr[5] = {10, 20, 30, 40, 50};
printf("%d", arr[3]);
```

a) 10

b) 20

c) 30

d) 40 *(Correct option)

15. What will be the output of the following code?

```
char name[10] = "Hello";
printf("%c", name[8/2]);
```

a) 'H'

b) 'e'

c) 'o' *(Correct option)

d) Garbage value

Q16. Chaitanya and Chitrang are best friends. Today they came late and were not able to sit together in the classroom. Chitrang wants to communicate with Chaitanya during their C lecture. So he decided to write a message on the paper and send it to him. No one can stand up during the lecture. Hence message has to be sent through the students sitting in the classroom one by one. Students can delete some of the characters from the message. Chaitanya can only understand the whole message correctly if he gets the message containing the substring of the original message.

Input:

You have given two strings m1 and m2.

Where m1 is a message of length N sent by Chitrang and m2 is a message received by Chaitanya.

Output:

Print “Yes” if Chaitanya is able to get the full message. Else print “No”.

Solution

```
#include<stdio.h>
#include<stdbool.h>
bool solve(char* s1, char* s2)
{
    int n=0,m=0;
    while(s1[n] != '\0')
    {
        n++;
    }
    while(s2[m] != '\0')
    {
        m++;
    }

   if(m ==0)
    return 1;

    for(int i = 0; i < n ; i++){

        int j = 0;

        if(s1[i] == s2[0]){
            int count = 0;
            while(j < m && j + i < n){

                if(s1[j + i] == s2[j])
                count++;
```

```
            j++;
        }
        if(count == m)
        return 1;
      }
   }
   return 0;
}
int main()
{
   char s1[1000],s2[1000];
   scanf("%s%s",s1,s2);
   if(solve(s1,s2))
   {
      printf("Yes");
   }
   else
   {
      printf("No");
   }
   return 0;
}
```

Q17. Write a program to calculate and display the sum of the harmonic series for a given value of n: 1 + ½ + 1/3 + ¼ +….. +1/n.

The value of n should be given interactively through the terminal or command line..

Input:

Input n, is the number which controls the sum at any given point.

Output:

Sum of harmonic series

Solution:

```
#include <stdio.h>
int main()
{
 int n;
 float a,i;
 printf("Input \t\t: ");
 scanf("%d", &n);
 while (!(n>0))
 {
 printf("\n\nEnter a POSITIVE Number : ");
 scanf("%d", &n);
 }

 for (i=1; i<=n; i++)
 {
 a += (1.0/i);
 }
 printf("\nRequired Output : %f\n", a);
 return 1;
}
```

Q18 **Problem Statement: Write function to find the maximum and second maximum element in a one-dimensional array,The function should handle duplicates.**

Sample Input:

arr[] = {10, 20, 30, 40, 50} \\ array

Sample Output:

Max = 50

Second Max = 40

Solution:

```
#include <stdio.h>

void findMaxAndSecondMax(int arr[], int n, int *max, int *secondMax) {
    if (arr[0] > arr[1]) {
        *max = arr[0];
        *secondMax = arr[1];
```

```
    } else {
        *max = arr[1];
        *secondMax = arr[0];
    }
    for (int i = 2; i < n; i++) {
        if (arr[i] > *max) {
            *secondMax = *max;
            *max = arr[i];
        } else if (arr[i] > *secondMax) {
            *secondMax = arr[i];
        }
    }
}

int main() {
    int arr[] = {10, 20, 30, 40, 50};
    int n = sizeof(arr) / sizeof(arr[0]);
    int max, secondMax;
    findMaxAndSecondMax(arr, n, &max, &secondMax);
    printf("Max = %d\n", max);
    printf("Second Max = %d\n", secondMax);
    return 0;
}
```