Module 1

Q1) The Width of a processor's data path is measured in bits. Which of the following are common data paths?

a. 8 bits

b. 12 bits

c. 16 bits

d. 32 bits

Q2)Which is the type of memory for information that does not change on your computer?

a. RAM

b. ERAM

c. ROM

d. RW / RAM

Q3)Which one of the following is the address generated by CPU?
a) physical address
b) absolute address
c) logical address
d) none of the mentioned

Q4.An embedded system must have (a) hard disk (b) processor and memory (c) operating system (d) processor and input-output unit(s).

Q5.During the execution of the instructions, a copy of the instructions is placed in the _____ .
a) Register
b) RAM
c) System heap
d) Cache

Q6. CISC stands for,
a) Complete Instruction Sequential Compilation
b) Computer Integrated Sequential Compiler

c) Complex Instruction Set Computer

d) Complex Instruction Sequential Compilation

Q7.The I/O processor has a direct access to .... and contains a number of independent data channels.

A) main memory

B) secondary memory

C) cache

D) flash memory

Q8. Write a C Program to swap three numbers without using fourth variable.

Q9)Write a C Program to swap three numbers .

Q10)Write a C Program to swap two numbers using third variable.

Q11)Write a C Program to swap two numbers without using third variable.

Q12)Write a C Program to print the total seconds in a given time(hrs,min,sec's).

Q13)Write a C Program to convert temperature from Fahrenheit to centigrade.C=(F-32)*5/9.0

Q14)Write a program to calculate the sum of digits of a three digit number.

Q15) Write a program to find the reverse of a number.

Q16)Write a program to merge n numbers.

Exp: a=1,b=2,c=3 is 123 and a=1,b=2 is 12.

Q17)Write an algorithm,pseudo code and flowchart for finding:

   A)Maximum out of three numbers

   B)Maximum out of four numbers

   C)Factorial of a number

   D)Smallest out of n numbers

   E)First and second highest out of n numbers

Q18)Determine which of the following are valid identifiers.If invalid ,explain why

A) record1 B) $tax C) name_and_address D)1record e)name f)name-and-address g)file_3 h) name and address I) 123-45 j)return

Q19)Determine which of the following are valid character constants

A) 'a' B)'\\' C) '\0' D)'$' E) '\a' F)'xyz' G)'\n' H)'T' I)'\052'

Q20)What will be output to the following program:

A)main()

{int a,b;

scanf("%f %f",&a,&b);

printf("%d %d",a,b);

} If input is given as 2 3,the output will be:

I)2.0 3.0

II)3.0 2.0

III)2 3

IV)run time error

V)Garbage

Q21) Explain the output for the following:

main()

{

int x=2,y=6,z=6;

x=y==z;

printf("%d",x);

}

Q22)What is the purpose of control string in scanf function? What type of information does it convey?Of what is the control string composed?

Q23)If a control string within a scanf function contains multiple character groups,how are the character groups separated?Are whitespace characters required?

Q24)When entering data via the scanf function,must octal data be preceded by 0?Must hexadecimal data be preceded by 0x (or OX)?How must floating –point data be written?

Q25)Interpret the meaning of the control string in each of the following scanf functions:

A)scanf("%12ld %5hd %15lf %15le",&a,&b,&c,&d);

B) scanf("%10lx %6ho %5hu %14lu",&a,&b,&c,&d);

C)scanf("%12D %hd %15f %15e",&a,&b,&c,&d);

D)scanf("%8d %*d %12lf %12 lf",&a,&b,&c,&d);

Q26)Predict the output:

int a =3;

float b=3.0;

if(a==b)

printf("\n a and b are equal");

else

printf("\n a and b are not equal");

Q27)Write a program to print the second maximum of four numbers.

Q28)Write a program to computer the telephone bill of a customer.Monthly Rental is Rs 100 and rates are as follows:

No. Of calls	Rate
1 to 100	0
101 to 200	0.80
201 to 500	1
501 and above	1.20

Q29)Write a program to check whether a three digit number is a magic number or not.A number is a magic number if its reverse is same as the original number.

Q30)Write a program to determine an entered year is leap year or not.

Q31)Any character is entered through the keyboard.Write a program to determine whether the character entered is a capital letter ,a small case letter, a digit or a special symbol.

Q32)Write a program using conditional operators to determine whether a year entered through the keyboard is leap year or not.

Q33)Write a program to calculate the real roots of a quadratic equations.

Q34)Write a program to create a calculator using switch case statements that can perform addition,subtraction,multiplication, division and modulus(remainder).

Q35)What will b contain:

      int a=300,b,c;

      if(a>=400)

      b=300;

      c=200;

      printf("\n%d%d",b,c);

Q36)Write a program to print fibonnicci series upto N terms.

Q37)Write a program to check if the given sequence of numbers is in ascending order or not.The sentinel value of the sequence is –1.

Q38) Write a program to print the sum of 9+99+999+…..........n terms.

Q39)Write a program to print pascal's triangle:

1

11

121

1331

14641

Q40)Write a program to find square of a positive number without using math.h

Q41) Write a program to Convert a decimal number to its binary equivalent.

Q42)Write a program to compute the natural logarithm of a given number.

Q43)Write a program to generate n random numbers.

Q44)Write a program to print the following output:

abcdefgfedcba

abcdef fedcba

abcde edcba

abcd   dcba

abc   cba

ab   ba

a   a

Q45)Write a program to print number of characters typed by the user.Input will be terminated by enter key.

Q46)Write a program to reverse a number and find its octal equivalent.

Q47)Print the following pattern:

```
     4
    434
   43234
  4321234
   43234
    434
     4
```

Q48)Write a program to find out the maximum,second maximum,position of maximum,and position of second maximum from the sequence of n numbers.

Q49)Write a program to generate all combinations of 1,2 and 3 using for loop.

Q50)Write a program to print the sum of first n prime numbers.

Q51)According to a study ,the approximate level of intelligence of a person can be calculated using the following formula:

$$i=2+(y+0.5x)$$

Write a program which will produce a table of values of i,y and x,where y varies from 1 to 6 and for each value of y,x varies from 5.5 to 12.5 in steps of 0.5

Q52)Write a program to check whether a given number is palindrome or not.

Q53)Write a program to compute the volume and surface area of a sphere of radius r.

Q54)Write a program to print the sum of n numbers,sum of squares of first n even numbers and sum of cube of first n odd numbers.

Q55)Write a program to calculate overtime pay of 10 employees.Overtime is paid at the rate of Rs 12 per hour for every hour worked above 40 hours.Assume that employees do not work for fractional part of an hour.

Q56) Write a program to check whether a given sequence of values is sorted in increasing order.The sentinel value for the sequence is –1.No use of arrays is permitted.

Q57)Write a program to find the sum and average of values appearing at the positions divisible by 3 in the given sequence of n values.No use of arrays is permitted.

Q58)Write a program to find the number of times the minimum value has appeared in the given sequenceof n numbers.No use of arrays is permitted.

Q59)Write a program to input the marks of n students and count the number of students who have obtained a,b,c,d and f grades.The grades are awarded according to the following rules.

Marks	Grade
>=80	A
>=70	B
>=60	C
>=50	D
<50	F

Q60) Suppose we want to calculate the average of several consecutive lists of numbers. Ask user how many lists are to be averaged and the count of numbers in each list.Write above program.

Q61) Calculate the average of non negative numbers in a list of n numbers.

Q62) Write a loop that will calculate the sum of every third integer,beginning with I=2 for all values of I that are less than 100.Write the loop in three different ways:

A) Using a while statement

B) Using a do-while statement

C)Using a for statement.

Q63) Configure the program such that the output is always "I WIN.I WIN" irrespective of the number inputted by the user, using if else structure where else case prints " I LOSE." and if case prints" I WIN."

```
#include<stdio.h>
#include<conio.h>
void main()
{
        int sum;
        printf("Enter the value of sum");
        scanf("%d",&sum);
        if( sum=_____ )
        {
         _____
        }
        else
        {
         _____
        }


        _____
```

Q64) Predict the output:

```
#include <stdio.h>

  void main()
```

```c
{
    int x = 5;
    if (x < 1)
        printf("hello");
    if (x == 5)
        printf("hi");
    else
        printf("no");
}
```

a)hi
b)hello
c)no
d) None of the mentioned

Q65) The output of the code below is

```c
#include <stdio.h>
int x;
void main()
{
    if (x)
        printf("hi");
    else
        printf("how are u");
}
```

a)hi

b)how are you

c) Compile time error

d) None of the mentioned

Q66) Comment on the following code below

```
#include <stdio.h>

void main()

{

   int x = 5;

   if (true);

      printf("hello");

}
```

a) It will display hello

b) It will throw an error

c) Nothing will be displayed

d) Compiler dependent

Q67) The output of the code below is

```
#include <stdio.h>

void main()

{

   int x = 0;

   if (x == 0)

      printf("hi");

   else

      printf("how are u");

      printf("hello");
```

}

    a)hi
    b) how are you
    c) hello
    d) hihello

Q68) The output of the code below is

```
#include <stdio.h>

void main()

{

    int x = 5;

    if (x < 1);

        printf("Hello");



}
```

    a)Nothing
    b) Run time error
    c) Hello
    d) Varies

Q69) The output of the code below is(when 1 is entered)

```
#include <stdio.h>

void main()

{

    double ch;

    printf("enter a value btw 1 to 2:");

    scanf("%lf", &ch);

    switch (ch)

    {
```

```c
    case 1:

        printf("1");

        break;

    case 2:

        printf("2");

        break;

    }

}
```

    a) Compile time error
       b) 1
       c) 2
       d) Varies

Q70) When 1 is entered, The output of the code below is?

```c
#include <stdio.h>

void main()

{

    int ch;

    printf("enter a value btw 1 to 2:");

    scanf("%d", &ch);

    switch (ch)

    {

    case 1:

        printf("1\n");

    default:

        printf("2\n");

    }
```

}

a) 1

b) 2

c) 1 2

d) Run time error

Q71) When 2 is entered, The output of the code below is?

```
#include <stdio.h>
void main()
{
    int ch;
    printf("enter a value btw 1 to 2:");
    scanf("%d", &ch);
    switch (ch)
    {
    case 1:
        printf("1\n");
        break;
        printf("Hi");
    default:
        printf("2\n");
    }
}
```

a) 1

b) Hi 2

c) Run time error

d) 2

Q72) When 1 is entered, The output of the code below is?

```c
#include <stdio.h>
void main()
{
    int ch;
    printf("enter a value btw 1 to 2:");
    scanf("%d", &ch);
    switch (ch, ch + 1)
    {
    case 1:
        printf("1\n");
        break;
    case 2:
        printf("2");
        break;
    }
}
```

a) 1
b) 2
c) 3
d) Run time error

Q73). What is the output of this C code?

```c
#include <stdio.h>
int main()
{
    signed char chr;
    chr = 128;
```

```c
    printf("%d\n", chr);

    return 0;

}
```

       a) 128
         b) -128
         c) Depends on the compiler
         d) None of the mentioned

Q74) Comment on the output of this C code?

```c
#include <stdio.h>

int main()

{

    float f1 = 0.1;

    if (f1 == 0.1)

        printf("equal\n");

    else

        printf("not equal\n");

}
```

a) equal
b) not equal
c) Output depends on compiler
d) None of the mentioned

Q75) Comment on the output of this C code?

```c
#include <stdio.h>
```

```c
int main()
{
    float f1 = 0.1;
    if (f1 == 0.1f)
        printf("equal\n");
    else
        printf("not equal\n");
}
```

a) equal
b) not equal
c) Output depends on compiler
d) None of the mentioned

Q76) Which is correct with respect to size of the datatypes?
a) char > int > float
b) int > char > float
c) char < int < double
d) double > char > int

Q77) What is the output of this C code?

```c
#include <stdio.h>
int main()
{
    float x = 'a';
    printf("%f", x);
    return 0;
}
```

a) a
b) run time error

c) a.0000000
d) 97.000000

Q78) What is the output of this C code?

    #include <stdio.h>

    int main()

    {

        printf("C programming %s", "Class by\n%s Sanfoundry", "WOW");

    }

a) C programming Class by
   WOW Sanfoundry
b) C programming Class by\n%s Sanfoundry
c) C programming Class by
   %s Sanfoundry
d) Compilation error

Q79) What is the output of this C code?

    #include <stdio.h>

    #define a 10

    int main()

    {

        const int a = 5;

        printf("a = %d\n", a);

    }

a) a = 5
b) a = 10
c) Compilation error
d) Runtime error

Q80) What is the output of this C code?

    #include <stdio.h>

```c
int main()
{
    printf("sanfoundry\rclass\n");
    return 0;
}
```

a) sanfoundryclass
b) sanfoundry
   class
c) classundry
d) sanfoundry

Q81) What is the output of this C code?

```c
#include <stdio.h>
int main()
{
    printf("sanfoundry\r\nclass\n");
    return 0;
}
```

a) sanfoundryclass
b) sanfoundry
   class
c) classundry
d) sanfoundry

Q82) What is the output of this C code?

```c
#include <stdio.h>
int main()
{
    const int p;
```

```
        p = 4;

        printf("p is %d", p);

        return 0;

    }
```

a) p is 4
b) Compile time error
c) Run time error
d) p is followed by a garbage value

Q83) Comment on the output of this C code?

```
    #include <stdio.h>

    int const print()

    {

        printf("Sanfoundry.com");

        return 0;

    }

    void main()

    {

        print();

    }
```

a) Error because function name cannot be preceded by const
b) Sanfoundry.com
c) Sanfoundry.com is printed infinite times
d) Blank screen, no output

Q84) The following code 'for(;;)' represents an infinite loop. It can be terminated by.
a) break

b) exit(0)
c) abort()
d) All of the mentioned

Q85) Which for loop has range of similar indexes of 'i' used in for (i = 0;i < n; i++)?

a) for (i = n; i>0; i–)
b) for (i = n; i >= 0; i–)
c) for (i = n-1; i>0; i–)
d) for (i = n-1; i>-1; i–)

Q86) What is the output of this C code?

```
#include <stdio.h>

int main()
{
    while ()
        printf("In while loop ");
    printf("After loop\n");
}
```

a) In while loop after loop
b) After loop
c) Compile time error
d) Infinite loop

Q87) What is the output of this C code?

```
#include <stdio.h>
int main()
{
    do
```

```
    printf("In while loop ");

  while (0);

    printf("After loop\n");

  }
```

a) In while loop
b) In while loop
after loop
c) After loop
d) Infinite loop

Q88) What is the output of this C code?

```
  #include <stdio.h>

  int main()

  {

    int i = 0;

    do {

      i++;

      printf("In while loop\n");

    } while (i < 3);

  }
```

a) In while loop
In while loop
In while loop
b) In while loop
In while loop
c) Depends on the compiler
d) Compile time error

Q89) How many times i value is checked in the below code?

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

```c
int main()
{
    int i = 0;
    while (i < 3)
        i++;
    printf("In while loop\n");
}
```

a)2
b) 3
c) 4
d) 1

Q90) What is the output of this C code?

```c
#include <stdio.h>
int main()
{
    int a = 0, i = 0, b;
    for (i = 0;i < 5; i++)
    {
        a++;
        continue;
    }
}
```

a) 2
b) 3
c) 4
d) 5