NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: I - THEORY EXAMINATION (2022 - 2023)
Subject: Fundamentals of Computer Science

Time: 3 Hours   **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of **three Sections -A, B, & C.** It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

	SECTION A	20

1. Attempt all parts:-

1	In which of the following form, data is stored in computer? (CO1)	1

(a) Decimal

(b) Octal

(c) Hexadecimal

(d) Binary

1	The central processing unit is located in the _____ . (CO1)	1

(a) Hard disk

(b) System unit

(c) Memory Unit

(d) Monitor

1-c.	In a C expression, how is a logical AND represented? (CO2)	1

(a) AND

(b) $$

(c) ||

(d) &&

1-d.   What is the precedence of arithmetic operators (from lowest to highest)? (CO2)   1

(a) %, +, /, *, –

(b) +, -, %, *, /

(c) %, +, -, *, /

(d) - , + , / , *, %

1-e.   What is the error in the following program? (CO3)   1
```
#include<stdio.h>
int f(int a)
{
a>20? return(10):return(20);
}
int main()
{
int b;
b=f(20);
printf("%d\n",b);
return 0;
}
```
(a) Error: Return statement cannot be used with conditional operators

(b) Error: Prototype declaration

(c) Error: Two return statements cannot be used in any function

(d) No error

1-f.   A statement may contain compound statements only in the _____. (CO3)   1

(a) Else

(b) While

(c) End if

(d) All of the above

1-g.   Which preprocessor directive is used to end the scope of #ifdef? (CO4)   1

(a) #elif

(b) #ifndef

(c) #endif

(d) #if

1-h.   What is the meaning of using extern before function declaration? extern int   1

```
sum(int x, int y, int z)    (CO4)
{
return (x + y + z);
}
```

       (a) Function is made globally available

       (b) extern means nothing, sum() is same without extern keyword.

       (c) Function need not to be declared before its use

       (d) Function is made local to the file.

1-i.   In C, array index always start from _____ . (CO5)   1

       (a) 0

       (b) 2

       (c) 1

       (d) 3

1-j.   Difference between structure and union is _____ . (CO5)   1

       (a) we can define functions within structures but not within a union

       (b) we can define functions within union but not within a structure

       (c) the way memory is allocated

       (d) There is no difference

2. Attempt all parts:-

2.a.   Define Algorithm and its properties (CO1)   2

2.b.   What are C Tokens? (CO2)   2

2.c.   List down different types of loop available in C? (CO3)   2

2.d.   Define storage class and its use? (CO4)   2

2.e.   Define command line arguments? (CO5)   2

SECTION B   **30**

3. Answer any <u>five</u> of the following:-

3-a.   Define errors and their types with the help of examples. (CO1)   6

3-b.   Write down the structure of C program. Explain the use of header files and main() function. (CO1)   6

3-c.   Define loops. List down the different loops available in C along with their syntax.   (CO2)   6

3-d.   What do you understand by Associativity and Precedence? List down its use and importance. (CO2)   6

3.e.	Write a program to print the sum of all numbers up to a given number. (CO3)	6
3.f.	Define functions and their types. Explain the difference between Call by value and call by reference. (CO4)	6
3.g.	Discuss linear search with the help of a program. (CO5)	6

SECTION C   50

4. Answer any <u>one</u> of the following:-

| 4-a. | Define data type in C language. What are different types of data types in C. (CO1) | 10 |
| 4-b. | Discuss the major components of a digital computer with suitable block diagram. Also discuss the function of each component. (CO1) | 10 |

5. Answer any <u>one</u> of the following:-

| 5-a. | Define operators? List down different operators available in C. Explain Logical Operators in detail. (CO2) | 10 |
| 5-b. | Give the syntax and explain the working of switch-case statement.Write the program to implement the menus based basic calculator using switch case . (CO2) | 10 |

6. Answer any <u>one</u> of the following:-

| 6-a. | Write a program that accepts marks of five subjects and finds percentages and prints grades according to the following criteria: (CO3) | 10 |

Between 90-100%--------------Print 'A'
80-90%--------------------------Print 'B'
60-80%--------------------------Print 'C'
Below 60%---------------------Print 'D'

| 6-b. | Define Recursive function? Write a C Program to find the factorial of a given number using recursive function? (CO3) | 10 |

7. Answer any <u>one</u> of the following:-

| 7-a. | Write down the use of Structure along with its declaration syntax with the help of a program. Differentiate between Structure and Union. (CO4) | 10 |
| 7-b. | Define Pointers along with its syntax. Write a program to swap two numbers using pointers. (CO4) | 10 |

8. Answer any <u>one</u> of the following:-

| 8-a. | Write a program to sort a given array of integers in ascending order. (CO5) | 10 |
| 8-b. | Define various file operations in C. Write a program in C to count and print number of characters in a file. (CO5) | 10 |