NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: I - CARRY OVER THEORY EXAMINATION - MAY 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.*

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SECTION A   **20**

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1. Attempt all parts:-

1-a.   Which of the following is a structured programming technique that graphically represents the detailed steps required to solve a program? [CO1]   1

         (a) Object-oriented programming

         (b) Pseudocode

         (c) Flowchart

         (d) Top-down design

1-b.   Which of the following is an output device? [CO1]   1

         (a) Keyboard

         (b) Mouse

         (c) Light pen

         (d) VDU

1-c.   What will be the output of following program? [CO2]   1

```
#include
int main()
{
```

```
if( (-100 && 100)||(20 && -20) )
printf("%s","Condition is true.");
else
printf("%s","Condition is false.");
return 0;
}
```

      (a) Condition is true.

      (b) Condition is false.

      (c) No output

      (d) ERROR

1-d.   Which of these statements is correct in case of while loop in C ? [CO2]   1

      (a) Executes the block till the condition become false

      (b) Is an entry controlled loop

      (c) There might be condition when the loop will not execute at all

      (d) All of these

1-e.   Which standard library function will you use to find the last occurance of a   1
character in a string in C? [CO3]

      (a) strnchar()

      (b) strchar()

      (c) strrchar(

      (d) strrchr()

1-f.   It is necessary to declare the type of a function in the calling program if the   1
function [CO3]

      (a) Returns an integer

      (b) Returns a non-integer value

      (c) Is not defined in the same file

      (d) None of these

1-g.   What is the output of C program with arrays.? [CO4]   1
```
int main()
{
int ary(3)=[20,30,40];
printf("%d", a(1));
}
```

      (a) 20

      (b) 30

      (c) 0

      (d) compiler error

1-h.   Comment on the following 2 arrays with respect to P and Q. [CO4]   1

int *a1[8];

int *(a2[8]);

P. Array of pointers

Q. Pointer to an array

      (a) a1 is P, a2 is Q

      (b) a1 is P, a2 is P

      (c) a1 is Q, a2 is P

      (d) a1 is Q, a2 is Q

1-i.   Which among the following is the odd one out? [CO5]   1

      (a) printf

      (b) fprintf

      (c) putchar

      (d) scanf

1-j.   What is the default return-type of getchar()? [CO5]   1

      (a) char

      (b) int

      (c) char*

      (d) reading character doesn't require a return-type

2. Attempt all parts:-

2.a.   What is an Assembler? [CO1]   2

2.b.   Write the limitations of switch( ) and for( ) statements. [CO2]   2

2.c.   What are the Different ways of representing Structures and Functions? [CO3]   2

2.d.   Mention some advantages and disadvantages of Arrays. [CO4]   2

2.e.   Write all the file operating modes with definition. [CO5]   2

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SECTION B   30

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

3-a.   Define Memory and its types. Define Cache memory? How is it different from the primary memory? [CO1]   6

3-b.   Define pseudocode. Write a pseudocode to find the sum and average of given   6

three numbers. [CO1]

3-c.	What are unconditional control statements? Explain any two with syntax and example [CO2]	6
3-d.	Write a C program to find the biggest of three numbers. [CO2]	6
3.e.	Write a C program to check whether a number is even or odd using functions [CO3]	6
3.f.	Write a C program to read a set of strings and sort them in alphabetical order. [CO4]	6
3.g.	What is error handling? Explain briefly some error handling functions. [CO5]	6

SECTION C   **50**

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

| 4-a. | Write a program of find swap two numbers   [CO1]
    a) Using Third Variable
    b) Without using Third Variable. | 10 |
| 4-b. | Define Operator. List down all the operators available in C. Explain bitwise and logical operators.in detail. | 10 |

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

| 5-a. | Explain the two way selection (if, if-else, nested if-else, cascaded ifelse) in C language with syntax . [CO2] | 10 |
| 5-b. | How entry-controlled loop is different from exit-controlled loop.Write a program to print the following pattern [CO2] | 10 |

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

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

| 6-a. | Describe the concept of "Function with arguments and with return type" and "Function with arguments and no return type" with examples. [CO3] | 10 |
| 6-b. | Explain in detail about nesting of functions with example. [CO3] | 10 |

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

| 7-a. | Write a program to find the length of string using pointers. [CO4] | 10 |
| 7-b. | Write a C program to store and print name, USN, subject and IA marks of students using structure. [CO4] | 10 |

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

8-a.   Write a program in C to read name and marks of n number of students from   10
        and store them in a file. If the file previously exits, add the information to the
        file. [CO5]

8-b.   What are different operations that can be performed on a file? Write a program   10
        to create a data file and copy the content of one file into another file. [CO5]