NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: II - CARRY OVER THEORY EXAMINATION - MAY 2023

Subject: Programming for Problem Solving using C

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-a.   Where is RAM located ?   (CO1)   1

        (a) Expansion Board

        (b) External Drive

        (c) Mother Board

        (d) All of above

1-b.   Which of the following is an input device? (CO1)   1

        (a) Mouse

        (b) Plotter

        (c) Printer

        (d) VDU

1-c.   Which operators are used to compare the values of operands to produce   1
       logical value in C language?   (CO2)

        (a) Logical operator

        (b) Relational operator

(c) Assignment operator

(d) None of the above

1-d. What is sizeof() in C? (CO2) 1

(a) Operator

(b) Function

(c) Macro

(d) None of these

1-e. What will be the output of the following code (CO3) 1

```
#include
void main()
{
int i=0;
do
{
printf("while vs do-while");
} while(i==0);
printf("out of loop");
}
```

(a) while vs do-while' once

(b) 'Out of loop' infinite times

(c) Both 'while vs do-while' and 'Out of loop' once

(d) 'while vs do-while' infinite times

1-f. What will be the output of the following program? (CO3) 1

```
#include
int main()
{
int a=0,i=0,b;
for(i=0;i<5;i+=0.5)
{
a++;
continue;
}
printf("%d",a);
return 0;
}
```

(a) 5

(b) 10

(c) No output(infinite loop)

(d) Compilation error

1-g. Choose a correct statement about C structures. (CO4) 1

    (a) Structure elements can be initialized at the time of declaration.

    (b) Structure members can not be initialized at the time of declaration

    (c) Only integer members of structure can be initialized at the time of declaraion

    (d) None of the above

1-h. Array of Arrays is also called? (CO4) 1

    (a) Multi Data Array

    (b) Multi Size Array

    (c) Multi Dimensional Array

    (d) Multi Byte Array

1-i. Where is a file temporarily stored before read or write operation in C language? (CO5) 1

    (a) Notepad

    (b) RAM

    (c) Hard disk

    (d) Buffer

1-j. Which design activity can be used for the mapping operation to hardware? (CO5) 1

    (a) High-level transformation

    (b) Hardware / Software partitioning

    (c) Scheduling

    (d) Compilation

2. Attempt all parts:-

2.a. What is information? (CO1) 2

2.b. List various C Tokens. (CO2) 2

2.c. What is macro? (CO3) 2

2.d.	What is multi dimensional array?	(CO4)	2
2.e.	How a file pointer is declared?	(CO5)	2

SECTION B   **30**

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

3-a.	What are different characteristics of an algorithm? (CO1)		6
3-b.	Write a program in C to calculate the Simple Interest. (CO1)		6
3-c.	Explain indirection operator.	(CO2)	6
3-d.	Explain Hungarian Notation.	(CO2)	6
3.e.	Differentiate between break and continue statement (with example).	(CO3)	6
3.f.	Explain types of user defined functions.	(CO4)	6
3.g.	By giving real life examples, explain the applications of embedded systems. (CO5)		6

SECTION C   **50**

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

4-a.	Discuss various translators in C language.	(CO1)	10
4-b.	Explain the structure of C program in detail. (CO1)		10

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

5-a.	What do you understand by operators? Explain the various operators in C with their precedence. (CO2)		10
5-b.	Describe rules for the nomenclature of a variable in C.	(CO2)	10

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

6-a.	WAP to print following pattern	(CO3)	10

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

6-b.	What do you mean by C preprocessor? Give example of preprocessor directives (Macros, Conditional Compilation). Write the difference between typedef and macro. (CO3)		10

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

7-a.	Write a recursive function to print the n terms of a Fibonacci series	(CO4)	10
7-b.	Write a program to compute the GCD of four numbers using function.		10

(CO4)

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

8-a.   Write a program to copy the contents of one file into another file.   10
        (CO5)

8-b.   Write a program to read 30 numbers from a file to be called DATA and then   10
        write even and odd numbers into two separate files to be called EVEN and ODD
        respectively.   (CO5)