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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

MCA Integrated

SEM: I - THEORY EXAMINATION (2025 - 2026)

Subject: C Programming

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. In C, the smallest unit of a program (basic building block) is known as: [CO1, K2] 1
- Keyword
 - Identifier
 - Token
 - Constant
- 1-b. While designing a flowchart for even/odd checking, identify the symbol used for decision making. [CO1,K2] 1
- Parallelogram
 - Diamond
 - Ellipse
 - Rectangle
- 1-c. In a switch statement, the default block executes when: [CO2, K2] 1
- No case matches
 - First case matches
 - Last case matches
 - Always executes
- 1-d. The do-while loop is sometimes more useful than the while loop because- [CO2, K2] 1
- It always executes at least once
 - It executes faster
 - It uses fewer keywords
 - It avoids syntax errors

- 1-e. Identify the terminator used at the end of C strings. [CO3, K1] 1
- (a) '\n'
 - (b) ''
 - (c) '\0'
 - (d) '\t'
- 1-f. Select the function used to concatenate two strings in C. [CO3, K2] 1
- (a) strlen()
 - (b) strcmp()
 - (c) strcpy()
 - (d) strcat()
- 1-g. Memory allocated by malloc() is located in: [CO4, K2] 1
- (a) Heap
 - (b) Stack
 - (c) Code segment
 - (d) Register
- 1-h. calloc() initializes allocated memory to: [CO4, K1] 1
- (a) Random values
 - (b) -1
 - (c) Garbage
 - (d) Zero
- 1-i. Which function is used to write a character into a file? [CO5, K1] 1
- (a) fwrite()
 - (b) fputc()
 - (c) fprintf()
 - (d) None of these
- 1-j. Which function tells current position of file pointer? [CO5, K2] 1
- (a) fseek()
 - (b) ftell()
 - (c) rewind()
 - (d) pos()

2. Attempt all parts:-

- 2.a. Define an algorithm with one example. [CO1, K1] 2
- 2.b. Differentiate between entry-controlled and exit-controlled loops. [CO2, K4] 2
- 2.c. Explain how arrays are represented in memory. [CO3, K2] 2
- 2.d. Compare malloc() and calloc() in terms of initialization. [CO4, K5] 2
- 2.e. Define file pointer. [CO5, K2] 2

SECTION-B

30

3. Attempt all parts:-

3.a. Answer any one of the following:-

- 3.a.(i) Explain the structure of a C program with the help of an example program. [CO1, 6

K2]

- 3.a.(ii) Discuss the role of keywords, identifiers, and tokens in C programming. [CO1, K2] 6
- 3.b. Answer any one of the following:-
- 3.b.(i) Explain different types of loop in C with examples. [CO2, K3] 6
- 3.b.(ii) Define recursive function. Explain recursion with syntax and program. [CO2, K3] 6
- 3.c. Answer any one of the following:-
- 3.c.(i) Demonstrate the usage of string functions strcat() and strcmp() with examples. [CO3, K3] 6
- 3.c.(ii) Develop a C program to swap two numbers using pointers. [CO3, K3] 6
- 3.d. Answer any one of the following:-
- 3.d.(i) Develop a program to store and display information (EmpName, EmpNo, Salary) of 3 employee using array of structures. [CO4, K3] 6
- 3.d.(ii) Examine the role of malloc(), realloc() and free() functions with program for dynamic memory allocation. [CO4, K3] 6
- 3.e. Answer any one of the following:-
- 3.e.(i) Explain argc and argv in main(int argc, char *argv[]). [CO5, K2] 6
- 3.e.(ii) Explain the concept of file handling in C. Describe different file opening modes and their significance with suitable examples. [CO5, K3] 6

SECTION-C

50

4. Answer any one of the following:-
- 4-a. Compare and contrast syntax errors, logical errors, and runtime errors in C with examples. [CO1, K4] 10
- 4-b. Design a pseudo code and flowchart to calculate the factorial of a number. [CO1, K3] 10
5. Answer any one of the following:-
- 5-a. Explain the structure and working of a switch statement in C with syntax and diagram. [CO2, K2] 10
- 5-b. Explain storage classes in C. Discuss the default value, scope, lifetime, and storage of classes with suitable examples. [CO2, K3] 10
6. Answer any one of the following:-
- 6-a. Explain strings in C. Discuss string declaration, initialization, and storage, and illustrate the use of strrev() function with examples. [CO3, K3] 10
- 6-b. Explain arrays in C. Discuss one-dimensional and two-dimensional arrays, their declaration, initialization, and memory representation with suitable examples. [CO3, K3] 10
7. Answer any one of the following:-
- 7-a. Explain the concept of union in C. Discuss its syntax, memory allocation, and access of union members. Explain with suitable program. [CO4, K3] 10
- 7-b. Implement a program that allocates memory for an integer array using malloc(), accepts values, and prints them. [CO4, K3] 10
8. Answer any one of the following:-

- 8-a. Discuss the procedure for creating, opening, reading, and closing a file in C. 10
Illustrate the use of standard file handling functions with a neat program. [CO5, K3]
- 8-b. Develop a program that accepts command-line arguments and displays the sum of 10
all integers passed to it. [CO5, K3]

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