Code No: 131AD **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech I Year I Semester Examinations, January/February - 2024
COMPUTER PROGRAMMING IN C
(Common to CE, ME, MCT, AE, CEE)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	Differentiate between constants and variables in C.	[2]
b)	Discuss the role of the goto statement in C. Provide an example.	[3]
c)	What is a Multidimensional array in C. Provide an example?	[2]
d)	Explain the role of function prototypes in C programming.	[3]
e)	Discuss the importance of the asterisk (*) symbol in pointer declaration.	[2]
f)	Write the syntax of the function **strstr()** and its application in C.	[3]
g)	Discuss the importance of the dot (.) operator in accessing structure members.	[2]
h)	Provide an example of using **#define** preprocessor directive in C.	[3]
i)	Discuss the significance of the End-Of-File (EOF) indicator in file handling.	[2]
j)	Discuss the significance of **getc()** and **putc()** in character I/O with files.	[3]

PART - B

(50 Marks)

2.a) Describe the characteristics of a good algorithm. Why is clarity important in algorithm design?
b) Convert the hexadecimal number 2A into its binary and decimal equivalents. [5+5]

OR

3.a) Describe the process of type conversion in C. Explain Implicit and Explicit type conversions.
b) Write a C program that checks if a given year is a leap year or not. [4+6]

4.a) Explain the concept of scope and Life time of a variable in C.
b) Implement a C program that reverses the elements of an array. [4+6]

OR

5.a) Discuss the limitations of recursion in C programming.
b) Write a C program that uses recursion to calculate the sum of array elements. [3+7]

6.a) Write a C program that uses pointers to reverse a string.
b) Explain Pointer arithmetic in C. [6+4]

OR

7.a) Explain the null-terminated character array and its significance in representing strings.
b) Write a C program that counts the number of vowels and consonants in a string. [4+6]

8.a) Define a union in C. How does it differ from a structure?
b) Explain the concept of passing structures through pointers in C. [4+6]

OR

9.a) Explain the significance of command-line arguments in C.
b) Define an enumerated type in C. Explain the concept of **typedef** in C and how it is used with enumerated types. [4+6]

10.a) Define random access file operations. How can they be achieved in C?
b) Write a program in C that counts the number of words in a text file. [4+6]

OR

11.a) How does **fread()** contribute to reading binary data from a file in C?
b) Discuss the effect of opening a file in different modes. [5+5]

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