

Registration Number:

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**ST.JOSEPH’S UNIVERSITY, BENGALURU -27**

**B.C.A – I SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2023**

**(Examination conducted in November /December 2023)**

**CA 1221: Programming in C**

**(For current batch students only)**

**Time: 2 Hours Max Marks: 60**

**This paper contains \_\_\_2\_\_\_ printed pages and \_\_3\_\_\_ parts**

**PART-A**

 **ANSWER ALL THE QUESTIONS EACH CARRIES TWO MARKS 2x5=10**

1. Differentiate getche() and getchar() functions with examples.
2. Write a C program to find the given year is leap or not, using switch case.
3. Write a C program to illustrate the right shift operator with the input value 5 and generate the output for the same.
4. Write a program to open a file, read the contents and print the output line by line.
5. Generate the output for the following code segment.

#include <stdio.h>

int main() {

 int numbers[] = {1, 2, 3, 4, 5};

 int \*ptr = numbers;

 int i;

 for (i = 0; i < 5; i++) {

 printf("Element %d: %d\n", i, \*ptr);

 ptr++;

 }

 return 0;

}

**PART-B**

**ANSWER ANY 5 QUESTIONS EACH CARRIES FOUR MARKS 4x5=20**

1. How to find the standard deviation of the array elements given input N. (σ = √(Σ(xi - μ)² / N).
2. Differentiate structures and unions. Write an example with holds the student in structure wand employee in union.
3. Write a program to find the factorial of a number with the illustration of the recursion concept.
4. Write a program to concatenate two strings without the use of built in functions.
5. Differentiate string and character handling functions with a suitable programming examples.
6. Draw a flowchart to find the given number is prime or not.
7. Write an algorithm for find the bubble sort.

**PART-C**

**ANSWER ANY 3 QUESTIONS EACH CARRIES TEN MARKS 10x3=30**

1. What is the condition for multiplication of two matrices? Write a program for matrix multiplication of two dimensional arrays.
2. A) Write function for linear search (3)

 B) Write function for string reversal (4)

C)Trace the output for the following code (3)

#include <stdio.h>

 int main()

{

 int var1 = 10;

 int var2 = 20;

 int var3 = 30;

 int\* ptr\_arr[3] = { &var1, &var2, &var3 };

 for (int i = 0; i < 3; i++) {

 printf("Value of var%d: %d\tAddress: %p\n", i + 1, \*ptr\_arr[i], ptr\_arr[i]);

 }

 return 0;

}

1. A) Briefly explain tokens. (5)

 B) Explain the types of functions with suitable examples. (5)

16. What is DYNAMIC ALLOCATION of memory? With examples explain the use of malloc() and calloc() in allocating memory. How does calloc() differ from malloc()? Write a program to illustrate the same.