Registration Number:

Date & session: 14-12-2022 (1pm)

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| **ST. JOSEPH’S UNIVERSITY, BENGALURU -27**  **BCA – I SEMESTER**  **SEMESTER EXAMINATION: OCTOBER 2022**  **( Examination conducted in December 2022 )**  **CA 1221 – Programming in C**  **Time: 2 Hours Max Marks: 50**  **This paper contains 2 printed pages and 3(A,B &C) parts** | | |
| **PART A**  **Answer 4 out of 5questions** **1x4** | | |
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| 1 | How do you open a file? Explain with an example. | 1 |
| 2 | What is the output of this code segment?  int S=0, T=1;  while( T<=10){  printf(“%d\t”, T);  S = S + T;  T = T + 3;  }  printf(“%d\t”, S); | 1 |
| 3 | How would you allocate memory using the function malloc() to integer pointer int \*A to store 30 numbers? | 1 |
| 4 | Give the prototype of the inbuilt string function to concatenate (join) two strings. | 1 |
| 5 | What is the output of the following code segment?  # define Sqr( x) = x \* x  A= Sqr( 2+3 )  printf(“%d”, A); | 1 |
|  | **PART B**  **Answer any 8 out of 10 questions** | **2x8** |
| 6 | Write **flowchart** to input some numbers into an array find the minimum number and its location. | 2 |
| 7 | Write a function program to return the area of a triangle given the lengths of three sides.  ( Area = √( S(S-a)(S-b)(S-c) where S = (a+b+c)/2 ) | 2 |
| 8 | With an example show how the inbuilt string function strcmp() is used. | 2 |
| 9 | Write a function using **pointers** to find the length of a string. | 2 |
| 10 | Write a program in C to sum digits of a given multi digit number. | 2 |
| 11 | Write a recursive function program in C to return the factorial of a given number. | 2 |
| 12 | Write a function program in C to make a duplicate copy of a given string.  ( prototype : void **fnStrCpy**( char T[], char S[] ) | 2 |
| 13 | Write a program in C to find the sum of N terms of the even series  ( S = 2 + 4 + 6 +.. N terms) | 2 |
| 14 | Write a program in C to return the TRACE of a square matrix. | 2 |
| 15 | Write a function sub program to SWAP two numbers. | 2 |
| 16 | What is the use of printf() and scanf() functions. Mention format specifiers for various data types. Show how would you input Name which is a character array? | 2 |
|  | **PART C**  **Answer any 3 out of 4 questions** | **3x10** |
| 17 | 1. Why do we need conditional statements? Explain the use of two conditional statements. 2. Write function sub programs to input, print and return the **standard deviation** of N numbers in an array .Use them in the main program to input some numbers and find the standard deviation.   Standard Deviation= √( ∑Xi2/N – ( ∑Xi/N)2 ) | 3  7 |
| 18 | 1. Declare an integer pointer. With an example show how would you assign the address of a variable to it. How would you access the data at that pointer? 2. What is the condition for finding out the sum of two matrices? Write a program in C to input some numbers into two MxN matrices. Find the **sum of the matrices**. | 3  7 |
| 19 | 1. With examples indicate how you **input** data to a text file and how you **print** the information from a text file.   b) Write a function sub program to return **the Cosine of an angle in degrees** by summing terms of the cosine series as long as the value of the term generated is more than equal to 0.0001. Use it in the main program to list the cosine of angles between 0 and 180, for every 10 degrees.  Cos(X) = 1- X2/2! + X4/4! – X6/6! + ….   Where X = Pi \*Theta/180. Theta is angle in degrees. | 3  7 |
| 20 | 1. Create a structure data type EMPLOYEE to store EID, Name and Basic Salary of an employee. Write a code segment to input Employee ID, Name and Basic Salary of an employee. 2. Input some numbers into an array and sort them using **BUBBLE SORT** technique. | 3  7 |