END TERM EXAMINATION

FIRST SEMESTER [BCA] DECEMBER-2024 JANUARY-2025

Paper Code: BCA-101T   Subject: *Programming for Problem Solving Using C*

Time: 3 Hours   Maximum Marks: 60

Note: Attempt all questions as directed. Internal choice is indicted.

(4x5=20)

Q1   Attempt **any four** of the following questions:
- (a)   Differentiate built-in functions and user-defined functions
- (b)   Give an alternative of multiple **if** statements in C.
- (c)   What does conversion specification **%6s** means? Explain with example
- (d)   Write a C program to find the area of a triangle using **macros**
- (e)   List any four unconditional control statements in C.
- (f)   What is a **null** character? What is its use in a string?
- (g)   Distinguish between append mode and read mode.
- (h)   What is the difference between #include<abc.c> and #include "abc.c"?

Q2   (a)   Give differences between **while** and **do-while** statement.   **(5)**
       (b)   Write a C program to multiply m*n matrices and store the results in a third matrix.   **(5)**

OR

Q3   (a)   Write a C program to test whether a given string is a palindrome string. Explain the working of the program.   **(5)**
       (b)   Write a program in C to count the number of lines, words, characters in a given text.   **(5)**

Q4   (a)   What is a structure? How is it different from an array? How are they defined and initialized? Explain with examples   **(5)**
       (b)   Write a C program by using structures to read the following information of 100 employees.   **(5)**
       Employee name, employee number, experience (in years) and salary
       The program should print the number and names of all the employees who have 5 years or more experience but salary less than Rs. 10,000.

OR

Q5   (a)   Write a recursive function to display the first nth terms of the Fibonacci series.
       0 1 1 2 3 5 8 13 . . . .
       Also write the main program.   **(5)**
       (b)   Write a function to add two integers and another function to multiply two integers   **(5)**

Q6   (a)   Explain with examples the various file handling functions available in C.   **(5)**
       (b)   What is a preprocessor? Explain the various preprocessor directives   **(5)**

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OR

Q7 (a) List any ten file processing functions in C along with the examples **(5)**

(b) A student master file consists of registration number, name and marks in five subjects. Write a C program which will read the file and print a list of students who have failed in one or more subjects. Assume 40% is the pass mark. **(5)**

Q8 (a) Write a program in C to create a file named DEPARTMENT for storing information about employees. The record consists of the name of staff, designation, basic pay and earning. Calculate the earnings as basic + DA where DA is 159% of basic pay. **(5)**

(b) Declare a pointer to call these functions with two integer arguments. Using the pointer call the function to find sum and product of any two given integers **(5)**

OR

Q9 (a) What is a union? For what kind of applications are unions useful? Explain with an Example **(5)**

(b) Write a C program calls a function reverse() which accepts a string and display its reverse. **(5)**

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