Code No. 15005/AICTE

FACULTY OF ENGINEERING

B.E. (AICTE) I-Semester (Backlog) Examination, July 2021

Subject : Programming for Problem Solving

Time: 2 hours **Max. Marks: 70**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions. **(5x2 = 10 Marks)**

1 Define operating system. Write any four functions of operating system.
2 Write an algorithm to find the sum of two numbers.
3 Write the difference between Array and string with example.
4 Write a program to print the fibonacii sequence form 'I' to 'n' where n $\leq$ 30.
5 What is the output of the given program

```
int fun(int x, int y)
{   x = 2x + y ;
    return (x) ;
}
int main ( )
{   int x = 2, y = 5 ;
        y = fun (y, x) ;
        x = fun (x, y) ;
        printf (" % d   % d", x, y) ;
}
```

6 Write a program to search an element using linear search.
7 Give example for Array of structures and write its applications.
8 Define a Recursion. Write a recursive program to find factorial of given number.
9 Define pointer variable. Declare a pointer to pointer variable in 'C'.
10 Write any four file handling functions in 'C' language and its usage.

PART – B

Answer any four questions. **(4x15 = 60 Marks)**

11 (a) Define flowchart symbols and its functions. Draw a flow chart to check whether given number is prime (or) not?
(b) List the escape sequences in 'C' language with its usage. Give examples for each.
(c) Explain the components of computer systems with block diagram.

12 (a) Write the syntax of switch case statement with example.
(b) Write a program to find the transfer of 3x3 matric.

13 (a) Write a function to sort given 'n' numbers using Bubble sort.
(b) What are built in libraries? Give example.
(c) Write a program to demonstrate the call-by-reference mechanism.

14 (a) Write a recursive program to compute GCD of two numbers.
(b) Declare a student structure variable with Roll.no, name, percentage of Attendance. Write a program to list the name and Roll. No of student whose attendance is < 40%.

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15 (a) What is linked list? How it is represented and its applications?
(b) Write a program to find the number of words in a file.

16 (a) Write a program to find the addition of two nxn matrices.
(b) What are storage classes? Give example.

17 Write short notes on the following:
(a) Selection sort working principle with example
(b) List of string manipulation functions with its usage

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Code No. 15161/AICTE

FACULTY OF ENGINEERING
B.E. I - Semester (AICTE) (Main) (New) Examination, July 2021

Subject: Programming for Problem Solving

Time: 2 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any three questions from the remaining six questions.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1 Answer any four questions. **(4 x 4 = 16 Marks)**

(a) Differentiate compiler and interpreter.
(b) What is self-referential structure and given example?
(c) What is a file? What are file operations?
(d) In what way does an array differ from an ordinary variable?
(e) Write the algorithm for linear search.
(f) Define string. List any four string manipulation functions.
(g) Write a function to find the sum of digits of a given number.

(3x18 = 54 Marks)

2 (a) Draw a flowchart to find the root of a quadratic equation.
(b) Explain about computer components in detail.

3 (a) Explain different ways of passing arguments to function with example.
(b) Write a C program to add the prime numbers of a certain range (0 to 10).

4 (a) Explain how arrays are passed to a function with an example.
(b) Write a program to find the second maximum in an array using function.

5 (a) How is a structure data type different from an array? Explain with an example.
(b) Write a program to display the prime numbers in a Fibonacci series using recursion.

6 (a) Why pointers should have data types when their size is always 4 bytes (in a 32-bit machine), irrespective of the variable they are pointing to?
(b) Write a program to copy contents from one existing file into another file.

7 (a) Write a short notes on call by reference.
(b) Explain linear search algorithm with suitable example.

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