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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FACULTY OF ENGINEERING

B.E. (Civil/CSE/CME&DS) (AICTE) I – Semester (Main & Backlog) Examinations, March / April 2022

Subject: Programming for Problem Solving

Time: 3 Hours

Max. Marks: 70

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question carries 14 Marks.
   (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.

(a) Enlist any 3 difference between Object and Executable code?

(b) What are the applications of arrays?

(c) Write the pseudo code for bubble sort?

(d) What is recursion and give example?

(e) List out the various operations on Files?

(f) Write a code snippet for self-referential structure?

(g) Write a C program to perform swapping without using temporary variable?

2. (a) Draw and explain the block diagram of the computer?

(b) Draw the flowchart for greatest of 3 numbers?

3. (a) Differentiate while and do-while with an examples?

(b) Write a C program to perform matrix multiplication?

(a) Explain binary search with a suitable example?

(b) Write C program to find the roots of Quadratic equation?

(a) Create and display an employee structure with Ename, Eid, Age, Esal, DOJ.

(b) Write a C program on recursive Fibonacci series?

(a) What is pointer and what are the operations performed on pointers?

(b) Write a short notes on file handling?

(a) Compare call-by-value and call-by-reference methods with an example program.

(b) How does selection sort algorithm work? Explain step by step with an example.

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FACULTY OF ENGINEERING

B. E. (ECE/M/P/AE/CSE/CME/IT) II – Semester (AICTE)

(Main & Backlog) Examination, December 2020

Sub: Programming for Problem Solving

Time: 2 Hours   Max. Marks: 70

Note: (Missing data if, any can be assumed suitable).

PART – A

Answer any five questions.   (5 x 2 = 10 Marks)

1) Define an algorithm. Write an algorithm for sum of individual digits in a given number.
2) Write the difference between object code and executable code?
3) Compare and contrast "while" and "do-while" loop.
4) Write the characteristics of array in C.
5) What does "extern" mean in a function declaration?
6) Write the algorithm for linear search.
7) Define recursion, with an example.
8) What is Bit field in structures?
9) Is null pointer same as uninitialized pointer.
10) What is a file? What are file operations?

PART-B

Answer any four questions.   (4 x 15 = 60 Marks)

11. a) What are the advantages and disadvantages of structured programming?
    b) Write an algorithm to print the numbers that do not appear in the Fibonacci series.

12. a) What are the different types of operators that are included in C. Give example for each.
    b) Write a C program to add the prime numbers of a certain range (0 to 10)

13. a) Write a program to find the determinant of a matrix.
    b) How arrays are passed to a functions with an example.

14. Declare a structure to store the following information of an employee- employee code, employee name, salary, Department number. Write a C program to store the data of 'n' employees where n is given by user and use a function to display the employee information getting the maximum and minimum salary.

15. a) What is pointer variable? Give example? And what are the arithmetic operations that can be performed.
    b) Explain the linked list using example.

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-2-

16. a) Write a program to copy contents from one existing file into another file.
    b) Write a program that uses a function to sort the elements given by the user using selection sort.

17. (a) Write a e-program to find the factorial of a given number
    (b) Write a program to find the roots of quadratic equation.

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FACULTY OF ENGINEERING

B.E. (Civil/CSE/CME&DS) (AICTE) I – Semester (Main & Backlog) Examinations, March / April 2022

Subject: Programming for Problem Solving

Time: 3 Hours

Max. Marks: 70

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question carries 14 Marks.
(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.

(a) Enlist any 3 difference between Object and Executable code?

(b) What are the applications of arrays?

(c) Write the pseudo code for bubble sort?

(d) What is recursion and give example?

(e) List out the various operations on Files?

(f) Write a code snippet for self-referential structure?

(g) Write a C program to perform swapping without using temporary variable?

2. (a) Draw and explain the block diagram of the computer?

(b) Draw the flowchart for greatest of 3 numbers?

3. (a) Differentiate while and do-while with an examples?

(b) Write a C program to perform matrix multiplication?

. (a) Explain binary search with a suitable example?

(b) Write C program to find the roots of Quadratic equation?

(a) Create and display an employee structure with Ename, Eid, Age, Esal, DOJ.

(b) Write a C program on recursive Fibonacci series?

(a) What is pointer and what are the operations performed on pointers?

(b) Write a short notes on file handling?

(a) Compare call-by-value and call-by-reference methods with an example program.

(b) How does selection sort algorithm work? Explain step by step with an example.

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Code No: E-5618/N/BL/AICTE

FACULTY OF ENGINEERING

B.E. (EEE/EIE/ECE/M/P/AE/AI&DS/AI&ML/IoT/IT) II -Semester (AICTE) (Main& Backlog) (New)
Examination, September/ October 2023

Subject: Programming for Problem Solving

Time: 3 Hours

Max. Marks: 70

Note: (i) First question is compulsory and answer any four questions from the
remaining six questions. Each questions carries 14 Marks.
(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. a) Differentiate Compiler and Interpreter.
   b) What is the use of break statement?
   c) Write an Algorithm to perform Linear Search.
   d) What is recursion?
   e) What is pointer to pointer?
   f) Write a for loop to print 30, 27, 24, ……3.
   g) Illustrate the difference between = and ==.

2. a) Draw and Explain in detail various components of the computer.
   b) Draw the flowchart to find roots of the Quadratic Equation.

3. a) Write in detail if, if-else, switch with syntax and example.
   b) Explain the following string manipulating function strcpy(), strlen and strcat().

4. a) Sort the numbers using selection sort: 12, 23, 56, 48, 21, 33, 10
   b) How is call by value different from call by address.

5. a) What is Structure. Demonstrate with Student example.
   b) Write a recursive function to print Fibonacci series.

6. a) What is Linked List. Draw and represent it.
   b) Write a program to read from one file and write to another file.

7. a) Explain in detail Arithmetic, Relational and Logical Operator.
   b) Write a program to read and print a matrix.

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FACULTY OF ENGINEERING

B. E. (ECE/M/P/AE/CSE/CME/IT) II – Semester (AICTE)

(Main & Backlog) Examination, December 2020

Sub: Programming for Problem Solving

Time: 2 Hours   Max. Marks: 70

Note: (Missing data if, any can be assumed suitable).

PART – A

Answer any five questions.   (5 x 2 = 10 Marks)

1) Define an algorithm. Write an algorithm for sum of individual digits in a given number.
2) Write the difference between object code and executable code?
3) Compare and contrast "while" and "do-while" loop.
4) Write the characteristics of array in C.
5) What does "extern" mean in a function declaration?
6) Write the algorithm for linear search.
7) Define recursion, with an example.
8) What is Bit field in structures?
9) Is null pointer same as uninitialized pointer.
10) What is a file? What are file operations.

PART-B

Answer any four questions.   (4 x 15 = 60 Marks)

11. a) What are the advantages and disadvantages of structured programming?
    b) Write an algorithm to print the numbers that do not appear in the Fibonacci series.

12. a) What are the different types of operators that are included in C. Give example for each.
    b) Write a C program to add the prime numbers of a certain range (0 to 10)

13. a) Write a program to find the determinant of a matrix.
    b) How arrays are passed to a functions with an example.

14. Declare a structure to store the following information of an employee-employee code, employee name, salary, Department number. Write a C program to store the data of 'n' employees where n is given by user and use a function to display the employee information getting the maximum and minimum salary.

15. a) What is pointer variable? Give example? And what are the arithmetic operations that can be performed.
    b) Explain the linked list using example.

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-2-

16. a) Write a program to copy contents from one existing file into another file.
    b) Write a program that uses a function to sort the elements given by the user using selection sort.

17. (a) Write a e-program to find the factorial of a given number
    (b) Write a program to find the roots of quadratic equation.

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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 ord
           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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FACULTY OF ENGINEERING
BE I-Semester (CBCS) (Backlog) Examination, October 2020

Subject: Computer Programming & Problem Solving

Time: 2 Hours

Max. Ma

PART – A

Note: Answer any five questions.   (5x2 = 10

1) Convert 110110.11 to Decimal system.
2) What are variables and constants? Give examples.
3) Define Bitwise operators and give example.
4) Write a program to find factorial of a given number.
5) What are pre-processors? Give examples.
6) Define an array. Write its applications.
7) Write a program to add two matrices of 2 x 2 order.
8) What is a pointer? Write its applications.
9) What do you mean by a Union? Give example.
10) Give the description of self Referential structures.

PART – B

Note: Answer any four questions.   (4x15 = 60

11. a) What are precedence and Associatively of Operators? Explain.
    b) Discuss about type conversions with suitable example.

12. a) Write a program to find the sum of first 'n' natural numbers using for-loop.
    b) Write a program to find reverse of a given number using while loop.

13. a) What is two dimensional array? Write a program to multiply two 2x2 matrices.
    b) Explain about Bubble sort with example.

14. a) What are Lvalue and Rvalue? Explain about pointers to void.
    b) Give the outline of string manipulations functions.

15. Explain the following
    a) Structures   b) Typedef statement

16. a) Differentiate between call-by-value and call-by-reference with example.
    b) What are storage classes? Explain.

17. Write about
    a) Files handling operations in C
    b) Writ a program to convert the given number into binary form.

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FACULTY OF ENGINEERING

B.E. (Civil/CSE/AI/CME/DS) I - Semester (AICTE) (Main & Backlog) (New) Examination, February/ March 2024

Subject: Programming for Problem Solving

Time: 3 Hours

Max. Marks: 70

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 Marks.

(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. a) Explain the role of compilers in program execution.
   b) Define arithmetic expressions in C and their precedence.
   c) Explain the concept of bubble sort with an example.
   d) Give an example of a recursive function to find factorial.
   e) Explain the concept of pointer arithmetic with an example.
   f) What is a structure in C programming?
   g) Describe the purpose of flowcharts in programming.

2. a) Elaborate on the relationship between algorithms, source code, and executable code.
   b) Define pseudocode and its importance in programming.

3. a) Discuss the evaluation of conditional statements in C.
   b) Discuss the implementation and applications of multi-dimensional arrays in C.

4. a) Elaborate on the use of functions for modular programming in C.
   b) Explain the implementation of recursive functions in C.

5. a) Analyze the benefits and drawbacks of using recursion in programming.
   b) Discuss the use of structures in data organization and management.

6. a) Explain the use of pointers in arrays.
   b) Describe the basic idea of linked lists in C.

7. a) Explain the significance of parameter passing techniques in function calls.
   b) Explain the process of reading and writing files in C.

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FACULTY OF ENGINEERING

B.E. (EEE/EIE/ECE/ETE/M/P/AE/CS/AI&DS/AI&ML/IoT/IT) II - Semester (AICTE) (Main & Backlog)
(New) Examination, August / September 2024

Subject: Programming for Problem Solving

Time: 3 Hours   Max. Marks: 70

Note: (i) First question is compulsory and answer any four questions from the
remaining six questions. Each question carries 14 Marks.
(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. a) Differentiate between constant and variable.
   b) State the order of evaluation of operators in C statement and show the value of 'a' for the
      expression a = 5*6%4+9/3-1.
   c) What is the difference between passing an entire array and passing an array element as parameter
      to a function?
   d) What are the different ways of accessing of structure members?
   e) How are pointers can be declared and initialized?
   f) Define flow chart. List the different symbols used in flowchart.
   g) Write four different C statements that each add 1 to integer variable y.

2. a) Explain the block diagram of computer. Also explain the difference between primary and
      secondary memory.
   b) Write an algorithm and draw a flow chart to find the greatest number among the given 10
      numbers as input.

3. a) Write C program to reverse the given string.
   b) Write a C program to check the given number prime or not.

4. a) Differentiate Call by Value with Call by reference with example.
   b) Write a C program to implement selection sort technique.

5. a) Write a C program to find the factorial of given number 'N' ,where 'N' is the input value given
      by user using recursion.
   b) Write and explain the general format for declaring and accessing members of a structure.

6. a) How to use pointers as arguments in a function? Explain with a program.
   b) Write a program to copy contents of one file to another file.

7. a) Write a C Program to search for a given element in given set of array values using Linear –
      search Technique.
   b) What is an operating system? What do you mean by booting? Also explain what do you mean by
      loading, saving, compiling and execution of program?

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