Registration No:

Total Number of Pages: 02

B.Tech.
15BE2105

1st Semester Regular/Back Examination 2017-18
PROGRAMMING IN C
BRANCH: AERO, AUTO, BIOTECH,
CHEM, CIVIL, CSE, ECE, EEE, ELECTRICAL, ETC, FAT, IEE,
IT, MECH, METTAMIN, MINERAL, MME, PE, PLASTIC, TEXTILE
Time: 3 Hours
Max Marks: 100
Q.CODE: B1157
Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1   **Answer the following questions:** *multiple type or dash fill up type*   **(2x10)**

a)   Which of the following is a User-defined data type?
a) typedef int Boolean;
b) typedef enum {Mon, Tue, Wed, Thu, Fri} Workdays;
c) struct {char name[10], int age};
d) all of the mentioned

b)   C programs are converted into machine level language with the help of
a) A Compiler
b) An Editor
c) An Operating System
d) None of these

c)   Which of the following is an invalid if-else statement?
a) if (if (a == 1)){}
b) if (func1 (a)){}
c) if (a){}
d) if ((char) a){}

d)   Which loop is most suitable to first perform the operation and then test the condition?
a) for loop
b) while loop
c) do-while loop
d) none of the mentioned

e)   Which of the following cannot be static in C?
a) Variables
b) Functions
c) Structures
d) None of the mentioned

f)   Which of the following is a correct format for declaration of function?
a) return-type function-name(argument type);
b) return-type function-name(argument type)
{}
c) return-type (argument type)function-name;
d) all of the mentioned

g)   Which is an indirection operator among the following?
a) &
b) *
c) ->
d) .

h)   Comment on the following statement:
int (*a)[7];
a) An array "a" of pointers.
b) A pointer "a" to an array.
c) A ragged array.
d) None of the mentioned

i) FILE reserved word is
a) A structure tag declared in stdio.h
b) One of the basic datatypes in c
c) Pointer to the structure defined in stdio.h
d) It is a type name defined in stdio.h

j) Strcat function adds null character
a) Only if there is space
b) Always
c) Depends on the standard
d) Depends on the compiler

Q2   **Answer the following questions:** *Short answer type*   **(2x10)**
a) C is a structured programming language? Justify.
b) Write a 'C' program to find the largest among two numbers using Conditional Operator.
c) What is difference between while and do-while loops?
d) Discuss about switch statement with an example.
e) Differentiate between call by value and call by reference.
f) What is the difference between assignment and equality operation?
g) What are the limitation of array ?
h) Give an example of structure inside another structure.
i) How is a file pointer declared?
j) Differentiate between binary file and text file.

Q3 **a)** Define keyword and identifier in C. What is data type? Explain about different   **(10)**
data types with examples.
  b) What are variables and constants? What are the rules for declaring the variables?   **(5)**

Q4 **a)** Explain different types of operators used in C ,with suitable examples.   **(10)**
  b) Write a program in C to find the factorial of a given number.   **(5)**

Q5 **a)** Differentiate between Continue and Break statement. Write a C   **(10)**
program to calculate the grade of a student by considering the following
range of marks using switch-case statement.
O, 90 ≤ Marks ≤100

            E, 80 ≤Marks < 90
            A, 70 ≤Marks < 80
Grades=   B, 60 ≤Marks < 70
            C, 50 ≤Marks < 60
            D, 40 ≤Marks < 50
            F, Otherwise

  b) Write a program in C to print count the odd numbers present in between 1 to 100.   **(5)**

Q6 **a)** Explain about different parameter passing mechanisms in function with   **(10)**
examples.
  b) Write a program to find the greatest among 3 numbers using function.   **(5)**

Q7 **a)** Explain about different string manipulation functions with examples.   **(10)**
  b) Write a program to find given string is palindrome or not.   **(5)**

Q8 **a)** What do you mean by Array? Explain with suitable diagram that ,how the array   **(10)**
variables are stored in memory ? Write a program in C to add two 3 dimensional
matrices.
  b) Write a program to swap two numbers using pointer concept.   **(5)**

Q9 **a)** Explain about different file operations that can be performed on files. How to read   **(10)**
from and write to a file? Explain with examples.
  b) Differentiate between Structure and Union with suitable example.   **(5)**

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1st Semester Back Examination 2019-20
PROGRAMMING IN C
BRANCH : AEIE, AERO, AUTO, BIOMED, BIOTECH, CHEM, CIVIL, CSE, ECE, EEE, EIE, ELECTRICAL, ENV, ETC, FASHION, FAT, IEE, IT, ITE, MANUFAC, MANUTECH, MARINE, MECH, METTA, METTAMIN, MINERAL, MINING, MME, PE, PLASTIC, TEXTILE
Max Marks : 100
Time : 3 Hours
Q.CODE : HB974
Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.
The figures in the right hand margin indicate marks.

Part- I

Q1   **Only Short Answer Type Questions (Answer All-10)**   **(2x10)**
   a) Define C token.
   b) What is an indirection operator?
   c) Differentiate between variable and constant.
   d) How to seek to a position of a file? How to know current position? How to rewind position back to beginning?
   e) Write a C program to find out the largest among 3 no.s using conditional operator.
   f) What does the following declaration mean?
          int (*ptr)[10];
   g) When is do-while loop preferred over while loop, Give example?
   h) What is a self-referential structure?
   i) Distinguish between malloc() & calloc() memory allocation.
   j) Distinguish between structure and union.

Part- II

Q2   **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)**   **(6x8)**
   a) Discuss about different operators used in C.
   b) Write a C program to check whether a character is VOWEL or CONSONANT using switch case.
   c) Write a C program to print all Armstrong numbers from 1 to N.
   d) Write a program to sort an array using selection sort algorithm. Find out its best time complexity.
   e) Illustrate the different storage class specifiers used in C.
   f) Write a function to obtain the first 25 numbers of a Fibonacci sequence.
   g) Write a program to reverse the digits of a number and compare it with the original no.
   h) Define structure. Explain with an example.
   i) Write a program to obtain multiplication of two matrices of size [3][3].
   j) Implement the bubble sort on the following elements:
          20, 80,40, 70, 10, 50, 30, 60,90.
   k) Write a program using pointers to compute the sum of all elements stored in an array.
   l) Write a program that reads a file containing integers and appends at its end the sum of all the integers.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 Write a C program using a function to compute the distance between two points (x,y) and use it to create another function that will calculate area of triangle ABC, given its three vertices A(x1,y1), B(x2,y2), C(x3,y3). **(16)**

Q4 How parameters are passing through function through two techniques? Explain with an example. **(16)**

Q5 Differentiate between Continue and Break statement. Write a C program to calculate the grade of a student by considering the following range of marks using switch-case statement.
Grades = O, 90 ≤ Marks ≤100   E, 80 ≤Marks < 90   A, 70 ≤Marks < 80
B, 60 ≤Marks < 70   C, 50 ≤Marks < 60   D, 40 ≤Marks < 50   F, Otherwise **(16)**

Q6 Define recursive function. Find out factorial of a number using recursive function and non-recursive function. **(16)**

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Total Number of Pages: 01
B.Tech.
BE2105

1st Semester Back Examination 2017-18
PROGRAMMING IN C
BRANCH: AERO, AUTO, CHEM, CIVIL, CSE, ECE, EEE, EIE, ELECTRICAL, ETC, IT, MECH, MME, PE, TEXTILE
Time: 3 Hours
Max Marks: 70
Q.CODE: B723
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions:** **(2 x 10)**
  a) What is a flowchart ? Explain with one example.
  b) What is the difference between low level and high level language and uses of them?
  c) Explain about the break and continue with example.
  d) Explain about Actual and Formal parameters.
  e) Differentiate between for loop and while loop.
  f) What is an array variable? How it is different from ordinary variable?
  g) What are the various types of storage class used in C ?
  h) Differentiate between structure and union.
  i) Write the importance of typedef.
  j) Differentiate between scanf and fscanf functions with examples.

Q2 **a)** Breifly describe the computer architecture with a suitable block diagram. **(5)**
  b) What are the steps involved in program development process? Explain. **(5)**

Q3 **a)** What do you mean by operator precedence and associativity ? explain different types of operators used in c with examples. **(5)**
  b) Write a C program to swap (exchange) the values of two variables without using temporary variable. **(5)**

Q4 **a)** Write a C program to find the sum of first and last digit of a number. **(5)**
  b) What is Recursive Function? What are the constraints for defining a Recursive function? Explain with an example. **(5)**

Q5 **a)** Discuss various valid arithmetic operations that can be performed on pointers in C. **(5)**
  b) Explain the concept of Nested structures with a sample C program. **(5)**

Q6 **a)** Explain about different storage classes with examples. Discuss their uses and scope. **(5)**
  b) Explain different string handling functions available in C language **(5)**

Q7 What do you mean by file ? What are the functions used for accessing files randomly? Explain with examples **(10)**

Q8 **Write short answer on any TWO:** **(5 x 2)**
  a) Global variable vs Local Variable
  b) Structure vs Union
  c) Storage classes used in C
  d) Data types used in C

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Total Number of Pages : 01   **B.Tech**
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1st Semester Back Examination 2019-20
PROGRAMMING IN C
BRANCH : AEIE, AERO, AUTO, BIOMED, BIOTECH, CHEM, CIVIL, CSE, ECE, EEE, EIE,
ELECTRICAL, ENV, ETC, FASHION, FAT, IEE, IT, ITE, MANUFAC, MANUTECH,
MARINE, MECH, METTA, METTAMIN, MINERAL, MINING, MME, PE, PLASTIC, TEXTILE
Time : 3 Hours
Max Marks : 70
Q.CODE : HB630
Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

Q1   **Answer the following questions :**   **(2 x 10)**
   a)   Explain the terms character set, tokens, constant and variables.
   b)   Distinguish between the purpose of continue and break statement.
   c)   Differentiate between while and do-while statement ?
   d)   When to user → (arrow) operator.
   e)   Differentiate between structure and union ?
   f)   Define NULL pointer?
   g)   What is a self-referential structure?
   h)   Distinguish between malloc() & calloc() memory allocation.
   i)   Describe the use of conditional operator. What is its associativity?
   j)   How to seek to a position of a file? How to know current position? How to
            rewind position back to beginning?

Q2 **a)** Write a program to reverse the digits of a 4-digit number.   **(5)**
        b) Enlist the different types of operators used in C and specify its associativity? **(5)**

Q3 **a)** What do you mean by recursive function ? Find out the factorial of a no using **(5)**
                recursive function ?
        b) Specify the storage classes used in C .   **(5)**

Q4 **a)** Write a program to obtain the determinant value of a 3*3 matrix.   **(5)**
        b)   Write a C program to check a no is armstrong number or not.   **(5)**

Q5 **a)** Write a program that reads a file containing integers and appends at its end the **(5)**
                sum of all the integers.
        b) Write a program to read a file and display its contents along with line numbers **(5)**
                before each line.

Q6   How arguments are passing through function calls? Explain call by value and   **(10)**
            call by reference with example.

Q7   Implement the bubble sort and insertion sort on the following elements: **(10)**
            22, 88,44, 77, 11, 55, 33, 66,99.

Q8   **Write short Notes on any TWO :**   **(5 x 2)**
   a)   Inline functions
   b)   Command line arguments
   c)   Dynamic memory allocation

Registration No :

Total Number of Pages : 02

B.Tech
15BE2106

2ⁿᵈ Semester Back Examination 2018-19
DATA STRUCTURE USING C
BRANCH : AEIE, AUTO, CHEM, CIVIL, CSE, ECE, EEE,
ELECTRICAL, ETC, FAT, IT, MECH, MINERAL, MME, PE, TEXTILE
Max Marks : 100
Time : 3 Hours
Q.CODE : F1010
Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.
The figures in the right hand margin indicate marks.

Part- I

Q1   **Only Short Answer Type Questions (Answer All-10)**   (2 x 10)
- a) Distinguish between primitive data structure and non-primitive data structure.
- b) List out few of the Application of data-structure.
- c) Define a full binary tree & a complete binary tree.
- d) What do you mean by balance factor of a node in AVL tree?
- e) How can you check whether a binary tree is height balanced or not?
- f) Is it possible to find a loop in a Linked list ? Explain your answer.
- g) Differentiate between BFS vs DFS for Binary Tree.
- h) How many stacks are required to implement a Queue.
- i) Mention about the different types of Hashing Techniques.
- j) What are the categories of AVL rotations?

Part- II

Q2   **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)**   (6 x 8)
- a) Illustrate an algorithm to insert a node at a particular location in a double linked list.
- b) Write suitable functions or procedures to perform the following string operations:
  - a) Check whether a string is empty
  - b) Comparing whether 2 strings are identical
  - c) Reverse of a string
- c) Evaluate the arithmetic expression P written in postfix notation using stack.
  P: 3, 16, 2, +, *, 12, 6, /, -,)
- d) Develop an algorithm to insert an item and to delete an item from a queue.
- e) Define tree. Explain basic terminologies used in tree.
- f) Construct a binary tree from its given Preorder: A B D E F C G H J L K and Inorder: D B F E A G C L J H K.
- g) Construct an expression tree from a prefix expression: * + a b * c + d e
- h) Explain the difference between depth-first and breadth-first traversing techniques at a graph.
- i) Explain quick sort & merge sort algorithms & derive their time-constraint relation.
- j) Write a program to arrange the list of numbers in ascending order using bubble sort.
- k) Design a heap by using the following list of numbers: 30, 60, 51, 40, 15, 95, 89, 36
- l) Write short note on Krushkal's Algorithm.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3   Represent a stack and queue in a single one-dimensional array. Write functions for   **(16)**
        Push, Pop operations on the stack and Add, Delete functions on the queue.

Q4   Draw a binary search tree whose elements are inserted in the following order: **(16)**
        50, 70, 90, 93, 100, 20, 10, 12, 9, 25, 51, 15, 95

Q5   Design an AVL tree whose elements are inserted in the following order: mar, may, nov,   **(16)**
        aug, apr, jan, dec, jul, feb, jun, oct, sep.

Q6   Give a basic algorithm for searching operation using linear searching and binary   **(16)**
        searching technique. Find out its time complexity.

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Total Number of Pages : 02   **B.Tech**
                                                                    BE2106

2nd Semester Back Examination 2018-19
DATA STRUCTURE USING C
BRANCH : CHEM, CIVIL, CSE, ECE, EEE, EIE, ELECTRICAL, IT, MECH
Time : 3 Hours
Max Marks : 70
Q.CODE : F058
Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

Q1   **Answer the following questions :**   (2 x 10)
   a)   List out few Application of tree data-structure.
   b)   Which data structures are applied when dealing with a recursive function?
   c)   State the difference between arrays and linked list.
   d)   How can you calculate balance factor of a node in AVL tree?
   e)   What would be the asymptotic time complexity to add an element in the linked list?
   f)   For any two different vertices u and v of an Acyclic Directed Graph if v is reachable from u, u is also reachable from v? Analyse it.
   g)   What are the types of Collision Resolution Techniques and the methods used in each of the type?
   h)   Classify the Hashing Functions based on the various methods by which the key value is found.
   i)   Define spanning Tree.
   j)   How many stacks are required to implement a Queue.

Q2   a)   Write a function to delete a node from a circular linked list.   **(5)**
         b)   Write an algorithm to insert a node into the double linked list.   **(5)**

Q3   a)   Convert the following infix expression to prefix notation   **(5)**
              E: (A+B*C*(M*N^P+T)-G+H)
         b)   Evaluate the given prefix expression appended with a left parenthesis at the   **(5)**
              beginning E: (, -, *, 3, +, 16, 2, /, 12, 6

Q4   a)   Construct a binary search tree (BST) using list of letters J, R, D, G, T, E, M,   **(5)**
              H, P, A, F, Q. Find the pre-order, in-order, post-order traversal of the BST
              created.
         b)   Write a program to arrange the list of numbers in ascending order using quick   **(5)**
              sort.

Q5   a)   Explain the difference between depth-first and breadth-first traversing   **(5)**
              techniques at a graph.
         b)   Develop C-segments for array implementation of stack for PUSH & POP   **(5)**
              operation.

Q6   Insert the following nodes in an AVL tree. Nodes are 55, 66, 77, 15, 11, 33,   **(10)**
           22, 35, 25, 44, 88, 99

Q7   Write a C program to create a single linked list and split it at the middle and   **(10)**
           make the second half as the first. Display the final list.

Q8   **Write short answer on any TWO :**   **(5 x 2)**
     a)   Abstract Data Type
     b)   Krushkal's Algorithm
     c)   Warshall's algorithm

2nd Semester Regular / Back Examination: 2021-22
PROGRAMMING FOR PROBLEM SOLVING USING C
BRANCH(S): AEIE, AERO, AME, AUTO, BIOMED, BIOTECH,
CHEM, CIVIL, CSE, CSEAI, CSEAIME, CST, ECE,
EEE, ELECTRICAL, ELECTRICAL & C.E,
ELECTRONICS & C.E, ENV, ETC, IT, MANUTECH,
MECH, METTA, MINERAL, MINING, MME, PLASTIC, PT
Time : 3 Hour
Max Marks : 100
Q.Code : J438
Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two
from Part-III.
The figures in the right hand margin indicate marks.

Part-I

Q1 Answer the following questions : (2 × 10)
a) Differentiate between compilation error and logical error.
b) Why C is called a mid-level programming language?
c) Write a program to test a number divisible by 3 or not.
d) Explain with example how a nested if-else structure is written.
e) Explain the advantages of union over structure with example.
f) Explain why recursion is not suitable when there is a space constraint in a machine.
g) Can we compile and execute a C program without main() function?
h) What is a self referential structure?
i) Explain with example the use of a static variable in C?
j) What is null pointer and far pointer in C ?

Part-II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 × 8)
a) Differentiate between primary memory and secondary memory with example.
b) Draw a flow chart to find the largest among three numbers.
c) Explain with example how a for loop can be written using while loop.
d) Write a program to count the number of 1's and 0's in a Boolean matrix of size mxn.
e) Write a program in C to read a string and convert all lower case letters of the string to upper case and vice-versa.
f) Write a recursive function to display first 10 Fibonacci numbers.
g) Write a program to add first 10 prime numbers in C Programming?
h) Write a program in C to test a string whether palindrome or not.
i) Differentiate between pointer to function and function returning a pointer with example.
j) What is dangling pointer in C? How to overcome the problem of a dangling pointer

k) Explain various types of storage classes used in C. Explain the scope and importance of these variables

l) Write the algorithm in C-like language to sort an array of n numbers using quick sort.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 a) Explain arithmetic operators in C with example. Explain briefly the prececedence and associatiyity of these operators with example. (8)

     b) Write a program in C to print Pascal's triangle for 15 rows. (8)
```
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
```

Q4 a) Explain the difference between call by value and call by reference with example. (8)

     b) Write a function to find the largest among n numbers and use this function to sort an array of n numbers. (8)

Q5 a) What is dynamic memory allocation? How the memory is allocated and reallocated dynamically in C? (8)

     b) Write a program in C to add two matrices allocating memory spaces dynamically. (8)

Q6 a) For a sorted array of n numbers, modify the linear search algorithm so that the average case time complexity of successful search will be $(n+1)/2$. (8)

     b) Is an array is fully sorted what will be the time complexity of bubble sort? Explain your answer with justification. (8)

Registration No : | 2 | 2 | 0 | 1 | 2 | 1 | 4 | 0 | 6 | 5 |

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2nd Semester Regular/Back Examination: 2022-23
Programming For Problem Solving Using C
AERO, AE, AEIE, AUTO, BIOMED, BIOTECH, CHEM, CIVIL, CST, CSEAI, CSEDS, CSE, CSIT,
CSEAIME, ELECTRICAL & C.E, EEE, ELECTRICAL, ECE, ETC, EIE, IT, MANUTECH, MECH, MME,
METTA, MINERAL, MINING, PLASTIC

Time : 3 Hours
Max Marks : 100
Q.Code : M246

Answer Question No.1 (Part-1) which is compulsory, a ny eight from Part-II and any two
from Part-III.
The figures in the right hand margin indicate marks.

Part-I

Q1   Answer the following questions: (2 x 10)
   a)   Mention three main purposes of an operating system?
   b)   Represent the following C code using flow chart.
        if (a>b) printf("a>b");
        else printf("a<b");
   c)   What is the ternary operator? Write its syntax and the actual code that it means.
   d)   Differentiate between compilation error and logical error.
   e)   Write the use of break statement with example.
   f)   Write a program segment to swap two variables without using a third variable.
   g)   What is dangling pointer in C?
   h)   Consider the following declaration of a 'two-dimensional array in C:
        char a[100][100];
        Assuming that the main memory is byte-addressable and that the array is stored starting
        from memory address 0. Find the address of a[40][50]?
   i)   Predict the output of below program:
        #include <stdio.h>
        int main()
        {
            int arr[5];
            // Assume base address of arr is 2000 and size of integer is 32 bit
            printf("%u %u", arr, &arr[1]);
            return 0;
        }
   j)   Write any three library functions to read from a file. If fopen() functions is not able to open a
        file, what does it returns?

Part-II

Q2 **Only Focused-Short Answer Type Questions-** (Answer Any Eight out of Twelve)   (6 × 8)

a) Explain different type of operators used in C programming with suitable examples.

b) Write a C program to find the number of matching substrings in a string and print their position in the string.

Input: string= abbacccacbac, substring=bac

Output: number of matchings=2, positions=3, 10

c) An electricity board charges the following rates for the use of electricity: for the first 200 units 80 paise per unit: for the next 100 units 90 paise per unit: beyond 300 units Rs 1 per unit. All users are charged a minimum of Rs. 100 as meter charge. If the total amount is more than Rs 400, then an additional surcharge of 15% of the total amount is charged. Write a C program to read the name of the user, number of units consumed and print out the charges.

d) Distinguish between entry-controlled loop and exit controlled loop with suitable examples. Write a program to find the sum of all prime numbers from 1 to n (taking n as user input).

e) Explain with suitable examples the scope, visibility, and lifetime of auto, external, static and register variables.

f) Write a C program to determine if a matrix is symmetric, skew-symmetric, or asymmetric.

g) Write a program in C to test a string whether palindrome or not.

h) Define a pointer? Discuss the declaration and initialization of the pointer variable. Define a function that uses pointers to take two matrices as input and returns their product.

i) What is a self-referential structure? Demonstrate the difference in usage of malloc() and calloc() functions for dynamic memory allocation. Write the C code to allocate space dynamically to a two-dimensional array of size 20 X 30.

j) Define a structure timeDuration that contains a time duration definition in hours, minutes, and seconds. Define a function timeAdder() that takes a list of durations and their number/size as input and calculates the total time elapsed. Use pointer arithmetic with pointers to structures.

k) Define a function binSearch() that performs iterative binary search on a given sorted array of integers. What is the time complexity and space complexity of binary search algorithm.

l) Write a C program to sort the elements of an unsorted array of integers using insertion sort algorithm. What is the worst-case and best-case time complexity of insertion sort algorithm.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 What is an array? Discuss different ways to declare and define one-dimensional and two-dimensional arrays with suitable examples.   (16)

Write a C program to enter a matrix of order m X n then print the difference between sum of the elements of main diagonal and sum of the elements of first row of the matrix.

Q4 Define function in C programming? Classify the user defined functions in C based on parameter passing and return type with suitable examples.   (16)

Like Fibonacci, there exists a Tribonacci series where the n-th term is defined as:

$T(n) = T(n-1) + T(n-2) + T(n-3)$, where $T(0) = 0$, $T(1) = T(2) = 1$

Define a recursive function that takes 'n' as user input and prints the n-th Tribonacci term.

Q5 Differentiate between structure and union, with an appropriate example that demonstrates the storage of the data members. **(16)**

You are required to rank the students of a classroom based on their marks in a particular subject. Define a student structure containing the members – ID, Name, Marks, and Rank. Provide user input facility for 10 students' data (ID, Name, Marks). Give the rank values as per the student ranking in the class. Define functions to print the data as a table.

Q6 Differentiate properly the various modes of opening a file in C programming. **(16)**

Write a C program to:

a) create a file to store sequentially a list of products with the data – ID, Name, Rate, Quantity

b) read the same file after creation and generate total bill amount.