Total No. of Questions – [4]

G.R. No.

Total No. of Printed Pages 2

U218–144 (T1)

Time: [1 Hour]   [Max. Marks: 30]

(*) Instructions to candidates:
1) Answer Q.1 OR Q.2 and Q.3 OR Q.4.
2) Figures to the right indicate full marks.
3) Use of scientific calculator is allowed.
4) Write suitable examples wherever necessary.
5) Draw suitable diagrams if required.

Q.1) a) Explain with example how a 2D array is passed to a function and returned from a function (with and without pointer).   [6 marks]
b) Differentiate between call by value and call by reference with the help of example.   [6 marks]
c) Write a C program to read contents of file and display.   [4 marks]

OR

Q.2) a) Write a pseudo C routine (using pointers) for checking whether a given string is palindrome. Write example.   [6 marks]
b) Explain any three functions used for file handling in C with syntax and example.   [6 marks]
c) Write a C program to set diagonal element to 1 and all other elements to 0 and display the Matrix using pointers   [4 marks]

Q.3) a) Define the following with an example.   [6 marks]
1. Data type
2. Data Object
3. Abstract data type
4. Data Structure.
5. Data
6. Classification of data structure.

b) 1. Find the frequency count for the following codes: [4 marks]
1. j=n;
    while(j>=1)
    {
            product=1;
            for(i=1;i<=m;i++)
                {
                product=product*i;
                }
            j--;
    }

2. for(i=0;i<n;i++){
        j=n;
        while(j>=1){
            x=x+j;
            j--;
            }
        }

c) What is best, worst and average case analysis of algorithm? Write example.
                                                              [4 marks]

OR

Q.4) a) Explain with example linear and non -linear data structure.   [6 marks]
b) State whether it is correct or incorrect. Justify your answer.   [4 marks]
    (1) $10n^2 + 9 = O(n)$
    (2) $n! = O(n^n)$
    (3) $3n + 6 = O(n)$.

c) What is persistent data structure? Give an example.   [4 marks]