Reg. No. :

Question Paper Code: U3827

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

Third Semester

Electrical and Electronics Engineering

21UIT327– DATA STRUCTURE USING C

(Regulation 2021)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Write and explain syntax of for loop.   CO2-App

2. Write a program to print the multiplication table from 1 to n.   CO2-App

3. What is difference between Union and Structure?   CO1- U

4. What is dynamic memory allocation in C?   CO1- U

5. What is structure in C with example?   CO1- U

6. What is array? Explain the memory representation of array with suitable   CO1- U
    example.

7. What is difference between Union and Structure?   CO1- U

8. What is dynamic memory allocation in C?   CO1- U

9. What is the worst case and best case numbers of comparisons in linear search?   CO1- U

10. Differentiate Internal sorting with external sorting.   CO1- U

PART – B (5 x 16= 80 Marks)

11. (a) Write a C program to find the largest and smallest element in an   CO2- App   (16)
        Array.

                                    Or

    (b) Write a C program to find the given number is ODD or EVEN   CO2- App   (16)
        and explain the for looping statement in C with example
        program.

12. (a) Write a C program to count total number of positive and negative elements in an array?   CO2- App   (16)

<div align="center">Or</div>

(b) Write a C program to find the given number is ODD or EVEN and explain the for looping statement in C with example program.   CO2- App   (16)

13. (a) Analyze any 4 operations of the Singly linked list with Routines and examples.   CO3- Ana   (16)

<div align="center">Or</div>

(b) Analyze doubly linked list and circular linked list with examples. Mention its advantages and disadvantages.   CO3- Ana   (16)

14. (a) Write the Graph traversal algorithm for BFS and DFS algorithm for the g tree with any example.   CO2- App   (16)

<div align="center">Or</div>

(b) Write the Graph representation of matrix Direct, Undirect graph and adjacency list with any example   CO2- App   (16)

15. (a) Write an algorithm to sort a set of 'N' numbers using quick sort. Demonstrate the algorithm for the following set of numbers: CO2- App   (16)
88, 11, 22, 44, 66, 99, 32, 67, 54, 10.

<div align="center">Or</div>

(b) Write an algorithm to implement Selection sort with Given example.   CO2- App   (16)
13,16,11,18,14,15

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