

Reg. No. :

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**Question Paper Code : 50486**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023

Third/Fourth Semester

Electronics And Communication Engineering

EC8393 – FUNDAMENTALS OF DATA STRUCTURES IN C

(Common to: Biomedical Engineering/Electronics and Telecommunication Engineering/ Medical Electronics)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

**PART A — (10 × 2 = 20 marks)**

1. Define Arrays.
2. What is a Variable? How to declare a variables in C with example?
3. Differentiate structure and union.
4. Define Pointers.
5. Define stack in data structure.
6. What is Linked list?
7. Define Binary Tree.
8. Compare directed and undirected graph.
9. Which is the best sorting technique? Why?
10. Define Hash Table.

PART B — (5 × 13 = 65 marks)

11. (a) (i) Discuss about various decision making statements in C Language. (6)  
(ii) Write a C program to find the greatest of three numbers. (7)

Or

- (b) (i) Explain any three string in-built functions. (6)  
(ii) Write a C program to sort n numbers in an array (7)

12. (a) Explain the pass by reference functions with an example.

Or

- (b) Create a nested structure for the student's information system and retrieval of student information. The structure members are: Reg\_number, Name, Data\_of\_Birth, Gender, Semester

13. (a) Explain the Stack Operation in Data Structure using C Language.

Or

- (b) Explain briefly linked list in data structure with a simple example.

14. (a) Explain the binary tree representation and applications and traversal with a simple example.

Or

- (b) Explain union and find operations in non-linear data structures.

15. (a) Explain Hash table and Hashing with a simple example.

Or

- (b) Discuss about binary search algorithm with example.

PART C — (1 × 15 = 15 marks)

16. (a) Explain Graph Traversal and different types of graph Traversal in data structure.

Or

- (b) Explain Quick sorting algorithm with example.