SQ - 34

Seat No.	

Total No. of Pages : 02

S.Y.B.Tech. (Part - I/II) (Semester - III) (CBCS)
Examination, MAY 2025
Artificial Intelligence & Machine Learningn (CSE)
Data Structures using C
Sub. Code : 86162

Day and Date : Wednesday, 07.05.2025 **Total Marks : 70**

Time : 10.30 a.m. to 1.00 p.m.

Instructions : 1) Question No. 6 is compulsory.
2) Solve any Four questions from Q. No. 1 to 5.
3) Assume suitable data wherever needed.
4) Figures to the right indicate full marks.

Q.1) A) What is array? Describe its types with example **(8)**

B) What is structure? Explain the C syntax of structure declaration with example. **(7)**

Q.2) A) Explain the storage class specifiers in C with example. **(8)**

B) Explain function call, function definition and function prototype with example. **(7)**

Q.3) A) Design a node for a singly linked list and write the following functions : **(8)**
i) To add a node at first position
ii) To delete a node at last position

B) Solve the following list using merge sort : **(7)**
8, 2, 4, 6, 9, 7, 10, 1, 5, 3

Q.4) A) What is meant by stack overflow condition ? Is it applicable to linked list? Give reason. Write implementation of stack operation using linked list. **(8)**

B) Using the following traversals construct the corresponding binary tree. **(7)**
Inorder : 40 20 50 10 60 30
Preorder : 10 20 40 50 30 60

Q.5) A) Show how to implement a queue using two stacks. **(8)**

B) Write an algorithm/pseudocode to convert a given infix expression to postfix expression. Trace the steps involved in converting the given infix expression ((A+B)^C) - ((D*C)/F) to postfix expression. **(7)**

Q.6) Write short not on any Two **(10)**

A) Structure of C program

B) Compare Binary Search and Linear Search.

C) Algorithm for BFS graph traversal