Seat No.	

SP - 272

Total No. of Pages :2

SHIVAJI UNIVERSITY, KOLHAPUR

S.Y. B.TECH. (CBCS) Part-I / II (CSE)

(Artificial Intelligence and Machine Learning)

Examination Oct./Nov. - 2023

DATA STRUCTURES USING C

Subject Code: 86162

Day and Date : Saturday, 06-01-2024 **Total Marks : 70**

Time : 10.30 a.m. to 01.00 p.m.

Instructions :

1. Question No. 6 is compulsory
2. Solve any four questions from Q. No. 1 to Q. No. 5
3. Assume suitable data wherever necessary
4. Figures to the right indicate full marks

Q.1 a) Explain the basic structure of a C program with an example **(8 Marks)**

b) List all conditional control statements used in C. Explain any two with syntax and example. **(7 Marks)**

Q.2 a) What is pointer? Explain the concept of function pointer, array of pointer and pointer to array. **(8 Marks)**

b) What is function? Explain its working with example. **(7 Marks)**

Q.3 a) What is sorting technique? Explain any one sorting algorithm. **(8 Marks)**

b) Write an algorithm to perform binary search on a given set of 'n' numbers. Using the algorithm search for the element 23 in the set

[12, 23, 34, 44, 48, 53, 87, 991 **(7 Marks)**

Q.4 a) The following sequence of operations are performed on a stack push(1), push(2), pop, push(1), push(2), pop, pop, pop, push(2), pop. Determined the sequence of popped out values. **(8 Marks)**

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 Marks)**

Q.5 a) Explain structure of B Tree **(8 Marks)**

b) What is graph traversal? Write an algorithm for graph traversal **(7 Marks)**

Q.6 a) Write short note on (Any Two) **(10 Marks)**

1. Differentiate between array and structures with example
2. Priority Queue
3. Binary tree traversal

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