Total No. of Questions : 4]

SEAT No. : ____

PA-7

[Total No. of Pages : 2

[5931]-10
S.E. (E & TC/Electronics)
DATA STRUCTURES
(2019 Pattern) (Semester - I) (204184)

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

Instructions to the candidates:

1) ***Solve Q1 or Q2, Q3 or Q4.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable data, if necessary.***

Q1) a) What is pseudo code? Write a pseudo code to find the factorial of *n* number. **[5]**

b) Write a C function with pointers to arrays for checking whether the given string is a palindrome or not. **[4]**

c) What is a pointer? What are the advantages of using a pointer? Explain the Pointer declaration and its initialization with an example. **[6]**

OR

Q2) a) Explain the following : **[6]**

i) Call by value

ii) Call by reference

b) Write the following functions in 'C' : **[6]**

i) STRCOPY() to copy a string to another string using an array.

ii) STRLENGTH() to find the length of the string using an array.

Note : do not use standard library functions.

c) Explain bitwise operators with examples. **[3]**

P.T.O.

Q3) a) Explain the binary search algorithm with an example. **[5]**

b) Sort the following numbers 38, 27, 43, 3, 9, 82, 10 using Bubble sort. **[5]**

c) Compare linear search and binary search. Write an algorithm to search elements in a list using linear search. **[5]**

OR

Q4) a) Write a C function for linear search. Explain its time complexity. **[5]**

b) What is the difference between internal sorting and external sorting? Sort the following numbers using selection sort. **[5]**

25, 17, 31, 13,2

c) Sort the following data using merge sort **[5]**

27, 10, 12, 25, 34, 16, 15, 31

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