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E+C

SARDAR PATEL UNIVERSITY
External Examination (CBCS)
B. Sc. IVth – Semester (CBCS) – Computer Science
US04CCSC21: Advanced 'C' and Introduction to Data Structures
16th April, Saturday, 2022

Time: 3.00pm to 5.00pm Total Marks: 70

Q-1 Select an appropriate option. 10

1. Which of the following is not a derived data type?
(a) Arrays (b) Float (c) Pointers (d) Structure

2. Which of the following allows a portion of memory to be shared by different types of data?
(a) Array (b) Structure (c) Union (d) File

3. Which of the following can be used to create a new type that can be used anywhere a type is permitted?
(a) typedef (b) array (c) struct (d) None of these

4. What is the function of getc() function?
(a) To read a number from file (b) To read a character from file
(c) To write character in to file (d) All of these

5. Which file modes are used in 'C'?
(a) "r","w" and "a" (b) "R", "W" and "A"
(c) "read", "write" and "append" (d) None of these

6. Which functions are used to read integer numbers from file?
(a) getc() (b) getw() (c) fscanf() (d) None of these

7. Two dimensional arrays are also called _____.
(a) Tables arrays (b) Matrix arrays
(c) Both (a) & (b) (d) None of these

8. A data structure where elements can be added or removed at either end but not in the middle?
(a) Linked List (b) Queue (c) Stack (d) Deque

9. Which of the following is NOT the type of Singly linked list?
(a) Two-way list (b) Doubly Linked list
(c) Three-way list (d) Circular Linked list

10. In doubly linked lists, traversal can be performed _____.
(a) Only in forward direction (b) Only in reverse direction
(c) In both directions (d) None of these

(P.T.O.)

Q-2 Fill in the blanks / State True or False 08

1. Array of structure can be created. (True / False)
2. A structure can be copied to another structure of same type using assignment operator. (True / False)
3. putw() functions are used to write integer numbers into a file. (True / False)
4. stdout and stderr are two predefined FILE pointers in C. (True / False)
5. A stack is ____ type of data structure.
6. An operation that is used to change the value of an element at a particular position from a top of a stack is known as _____.
7. Linked list is considered as an example of _____ type of memory allocation.
8. A variant of the linked list in which none of the node contains NULL pointer is _____.

Q-3 Answer the following questions. (Attempt any **TEN**) 20

1. Differentiate: structure and union
2. Explain typedef in brief with suitable example.
3. Explain use of keyword enum.
4. List file modes available to manage the file in C.
5. Explain the fclose() function.
6. Explain getw() and putw() functions.
7. What do you mean by Linear Data Structure?
8. Give representation of a Queue data structure.
9. State various applications of Stack.
10. What is a Linked List? How it is represented?
11. State various applications of Linked List.
12. Differentiate between Singly Linked List and Doubly Linked List.

Q-4 Answer the following questions. (Attempt any **FOUR**) 32

1. What is structure? Explain its definition, declaration and assigning values to members of structure.
2. Explain pointer to structure array using appropriate example.
3. Explain character handling functions used in file by giving example.
4. Explain in detail the functions which are used to read and write mixed data from/into a file.
5. What is data structure? List and explain advantages of data structure.
6. Explain a STACK with an example. Write algorithm to perform various operations over a stack.
7. Write an algorithm to insert an element at the beginning of a Singly linked list.
8. Explain bubble sort technique? Write an algorithm for bubble sort.