



SEAT No. _____

No. of Printed Pages: 2

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SARDAR PATEL UNIVERSITY

B. Sc. CA & IT Examination, 2nd Semester

Monday, 25th April, 2022

US02CIT21: Advanced C & Introduction to Data Structure

Time: 12:00 PM to 02:00 PM

Total Marks: 70

Note: Answer of all the questions (including Multiple Choice Questions) should be written in the provided answer book only

Q:1 Give answers of following Multiple Choice Questions [10]

- [01] Given the definitions shown below, which answer is not valid?
int i; float f; int *pd; float *pf;
(A) pd = pf; (B) i = 5;
(C) pd = &i; (D) pf = &f;
- [02] Which of the following defines and initializes a pointer to the address of x?
(A) int *ptr = *x; (B) int *ptr = &x;
(C) int &ptr = *x; (D) int *ptr = ^x;
- [03] Which of the following is not a derived data type?
(A) Arrays (B) Pointers
(C) Float (D) Structure
- [04] Which one of the following is valid for opening a file for only reading?
(A) fopen (filenm, "r"); (B) fopen (filenm, "r");
(C) fileOpen (filenm, "ra"); (D) fopen (filenm, "read");
- [05] The term "push" and "pop" is related to the?
(A) Array (B) Stacks
(C) Queue (D) All of these
- [06] Which of the following is NOT an application of a Stack data structure?
(A) Stack Machine (B) Evaluation of an Expressions
(C) Recursion (D) Creates a folder
- [07] An operation that is used to insert an element on a stack is known as _____.
(A) Push (B) Peep
(C) Pop (D) Change
- [08] Which of the following is NOT the type of Linked list?
(A) Two-way list (B) Three-way list
(C) Doubly Linked list (D) Circular linked list
- [09] A linked list in which last node pointing to the first node is known as _____.
(A) Singly linked list (B) Circular linked list
(C) Doubly linked list (D) None of the above
- [10] A data structure in which insertion and deletion of an elements occurs at both the end is known as _____.
(A) Stack (B) Priority Queue
(C) Queue (D) Dequeue

Q:2 Fill in the Blanks and True-False

[08]

- [01] _____ defines a pointer variable to an integer.
- [02] _____ allows a portion of memory to be shared by different types of data.
- [03] Files are a _____ type of Data Structure.
- [04] A linked list is _____ type of data structure.
- [05] Malloc() is a C memory allocation function. (T/F)
- [06] struct is used to create a new type that can be used anywhere a type is permitted. (T/F)
- [07] Linear arrays data structures are indexed structures (T/F)
- [08] A storage representation of a linked list in a memory is linear. (T/F)

Q:3 Answer the following short questions (any Ten)

[20]

- [01] Give the concept of pointers to array.
- [02] Differentiate malloc() and calloc().
- [03] List out benefits of pointers.
- [04] Define: structure, member operator
- [05] List file modes available to manage the file in C.
- [06] Differentiate: printf and fprintf
- [07] Give the Example of Non-Primitive Data Structure.
- [08] List out different applications of data Structure.
- [09] State various Applications of Stack.
- [10] Define: Queue and Dequeue.
- [11] Differentiate between stack and queue data structure.
- [12] What is a Singly Linked list?

Q:4 Answer the following short questions (any Four)

[32]

- [A] explain how arithmetic operations can be performed on the pointer variable by taking example.
- [B] Explain pointer to structure using suitable example.
- [C] Explain array within structure using suitable example.
- [D] Explain fprintf and fscanf function with example.
- [E] Write an algorithm to delete an element from a Stack.
- [F] Write an algorithm for Change operation of a Stack.
- [G] Explain a Queue with an example. Write along with for various operations performed over a queue.
- [H] Write an algorithm to delete an element from a simple queue.

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