SC

[18 / A-43]

SARDAR PATEL UNIVERSITY
S.Y.B.Sc : SEMESTER – IV : 2016
COMPUTER SCIENCE
US04CCSC01: Advanced C Programming and Introduction to Data Structure
Date: 07-04-2016, Thursday   Time: 10:30am to 01:30pm   Max. Marks: 70

Q.1   Multiple choice of Question: 10
   [1] Which of the following pointer expression is not wrong?
      (a) y = *p1 * * p2;   (b) Comparison like: p1>p2, p1==p2, and p1! =p2
      (c) z =5* - *p2 / *p1;   (d) sum+=*p2;
   [2] If a is declared as integer, which of the following statement is false?
      (a) The expression *&a and a are the same.
      (b) The expression int *p = &a is valid.
      (c) printf("%d",*&a); will print value of a.
      (d) The expression *&a and &*a are the same.
   [3] Which of the following defines a pointer variable to an integer?
      (a int *ptr;   (b int &ptr;   (c) int **ptr;   (d) int &&ptr;
   [4] Which of the following statement is true about union?
      (a) We can initialize all members of union.
      (b) If you fill in a member of one type and then try to use a different type,
         you can get unpredictable results.
      (c) All union members can not be accessed at the same time.
      (d) Size of a union is equal to total of size of all members.
   [5] What are two predefined FILE pointers in C?
      (a) stdout and stderr   (b) console and error
      (c) stdout and stdio   (d) stdio and stderr
   [6] Structures can not be initialized at
      (a) Run time by taking input from user
      (b) Run time by assignment statement
      (c) Compile time at time of declaration of structure variable
      (d) Compile time within structure definition using assignment statement
   [7] Which of the following is NOT an application of a Stack data structure?
      (a) Stack Machine   (b) Creates a folder
      (c) Evaluation of an Expressions   (d) Recursion
   [8] 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 _____.
      (a) Push   (b) Pop   (c) Change   (d) Peep
   [9] A data structure in which insertion and deletion of an elements occurs at
      both the end is known as _____.
      (a) Stack   (b) Queue   (c) Priority Queue   (d) Deque
   [10] A storage representation of a linked list in a memory is _____
      (a) Linear   (b) Non-linear   (c) Both (a)&(b)   (d) None of the above

Q.2   Answer the following questions in short (Any 10):   20
   [1] Differentiate malloc() and calloc().
   [2] Differentiate: a pointer and a pointer variable
   [3] Explain realloc() function.
   [4] List file modes available to manage the file in C.
   [5] Differentiate: structure and union
   [6] Explain typedef in brief with suitable example.
   [7] What is a Stack? Give examples.
   [8] What do you mean by Top and Bottom of a Stack?
   [9] Give representation of a Stack data structure.
   [10] State various types of queue.
   [11] State various Applications of Linked List.
   [12] What is a Queue? Give examples.

Q.3 [A] Explain the importance of pointers in functions by taking suitable example. How pointers can be used to return multiple values to functions?   5

[B] What are pointers? How can they be used with arrays? Explain pointer to an array using appropriate examples.   5

OR

Q.3 [A] Explain pointer arithmetic with example.   5

[B] Write note on: pointer to pointer.   5

Q.4 [A] Write note on: pointer to structure   5

[B] Explain array of structures using suitable examples.   5

OR

Q.4 [A] Write note on: structure within structure   5

[B] Describe the following functions with usage and limitation:
(1) getc()   and (2) putc()   5

Q.5 [A] Write an algorithm to delete an element from a Stack.   5

[B] Write a short note on linear data structure.   5

OR

Q.5 [A] Write an algorithm to peep an element from a Stack.   5

[B] Write a short note on non linear data structure.   5

Q.6 [A] Write an algorithm to insert an element into a Singly linked list that maintains ascending order of elements.   5

[B] Write an algorithm to insert an element into a simple queue.   5

OR

Q.6 [A] Write an algorithm to insert an element at the end of a Singly linked list.   5

[B] Write an algorithm to delete an element from a simple queue.   5

$$X = X = X$$