[121]

No. of Printed Pages: 3

SARDAR PATEL UNIVERSITY

M.Sc.(Information Technology)

SEMESTER-I

PS01CINT02(Advanced Programming Concepts and Data Structures)

Time:02:30pm to 5:30pm **Date:- 3/12/2012** **Max. Marks:70**

NOTE: Numbers to the right indicate full marks

Q.1 Give answers of following Multiple choice questions **[8]**

1. ..... function is used when input and output operation is failed during the file operation.

   a) eof() b) fail() c) bad() d)good()

2. In C++, dynamic memory allocation is accomplished with the operator ____

   a) new b) this c) malloc( ) d) delete

3. What will be the output of the following arithmetic expression?
   5+3*2%10-8*6

   a) -37 b) - 42 c) -32 d) -28

4. Consider the following statements:
   int x = 22,y=15;
   x = (x>y) ? (x+y) : (x-y);
   What will be the value of x after executing these statements?

   a) 22 b) 37 c) 7 d) Error. Cannot be executed

5. EBCDIC stands for _____

   (A) Extended Binary Coded Decimal Interchange
   (B) Extended Base Coding Decimal Integrated
   (C) Extended Base Coding Decimal Integration
   (D) None of these

6. In Array Data Structure, _____ denotes the size of an element.

(A) WORD (B) SIZE (C) LENGTH (D) BASE

7. _____ traversal algorithm process root first.

(A) Preorder (B) Inorder
(C) Postorder (D) All of these

8. Following are examples of Linked Non-Primitive Data Structures.
(A) Network Theory (B) Tree Theory (C) Graph Theory (D) All of above

Q.2 Do as directed.(Any Seven) [14]

1 How to open & close the file? What are the different file modes?
2 Write a note on macros in c++.
3 Write a note on parameter passing using pass by value and pass by reference.
4 Explain copy constructor with example.
5 What is virtual function? Write down the rules for virtual function.
6 List out any three applications of stack.
7 Define following terms of tree with example.
   a) Root node
   b) Binary Tree
   c) Out-degree of a node
   d) Cycle
8 Explain Stack Underflow and Stack Overflow in brief.
9 Define Data Structure and enlist any five applications of Data Structure.

Q.3 (a) Define inheritance & explain its different forms using example. Explain advantages and disadvantages of inheritance. [6]

(b) Write a short note on:- [6]
   i) Default arguments
   ii) Inline function
   iii) Command line arguments

OR

(b) Explain characteristics of OOP's (Object Oriented Programming). Explain the basic terminology related to OOP's. List advantages and disadvantages of OOP's. [6]

Q.4 (a) What is friend function & Give its syntax. Also give characteristics of friend function. Explain the usage of friend function with an example. [6]

(b) Write a program to multiply two matrices A and B by using class. (Size of matrices are 3 * 3). [6]

OR

Q.4 (b) What is operator overloading? List rules for overloading operators?Explain operator overloading with Unary operator. [6]

Q.5 (a) What is hashing? Explain the division method and mid square method of hashing. [6]

(b) What is sorting? Write a selection sort algorithm with dry run. [6]

OR

(b) Construct binary tree for given infix expression ((A+B)/D/ (E-F)). [6]

Q.6 (a) How Linked List is more efficient than other data structure? Write an algorithm for insertion of new element at the end of the Linked List. [6]

(b) How the Binary Search is better than Linear Search? Write an algorithm for binary search. [6]

OR

(b) Write a menu based program for implementation of Simple Queue with three member functions: [6]

a. Insertion of new element into a queue.
b. Deletion of element from a queue.
c. Display content of Queue.

— × —