B.E. (Electronics Engineering / Electronics Telecommunication Engineering / Electronics Communication Engineering) Semester Third (C.B.S.)

Object Oriented Programming & Data Structure

Paper - IV

P. Pages : 3

Time : Three Hours

_____

Notes :   1.   All questions carry marks as indicated.
           2.   Solve Question 1 OR Questions No. 2.
           3.   Solve Question 3 OR Questions No. 4.
           4.   Solve Question 5 OR Questions No. 6.
           5.   Solve Question 7 OR Questions No. 8.
           6.   Solve Question 9 OR Questions No. 10.
           7.   Solve Question 11 OR Questions No. 12.
           8.   Due credit will be given to neatness and adequate dimensions.
           9.   Assume suitable data whenever necessary.
           10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain the difference between object oriented programming and procedure oriented programming. **4**

    b) Explain the features of object oriented programming. **6**

    c) Define inline function, with example. **3**

OR

2. a) Explain the concept of constructor and destructor in C++.
Explain their types with an example. **6**

    b) Create a class student that contains a name, age and semester. Include a member function called getdata( ) to input the data from the user and another function called putdata( ) to display the data. Write a main ( ) program to test this class. **7**

3. a) What is operator overloading ? Name the operators that cannot be overloaded in C++. **3**

    b) Explain how the binary operator is overloaded.
Write a program for overloading binary operators using friend function. **7**

    c) What are function template and class template. Explain them using their proper syntax. **4**

OR

4. a) Explain the rules which are used to overload the operators. **6**

    b) Create a class FLOAT that contains one data member of type float. Overload all the four arithmetic operator, so that they operate on the objects of type FLOAT. **8**

5. a) What are virtual functions ? Why do we need virtual functions ? **5**

www.solveout.in

	b)	Write short notes on.	**8**
		i) Multiple inheritance.	
		ii) Hybrid inheritance	

OR

6.   a)   Explain the significance of Inheritance.   **5**

       b)   Design three classes : Student, exam and result. The student class has data members : rollno, name, semester, branch etc.   **8**
Create class exam by inheriting the student class. The exam class contains data members : Marks in three subjects and maximum marks.
Derive the class result from exam class and it has its own data members such as percentage grade.
Write a C++ program to model this relationship. What type of inheritance this model belongs to ?

7.   a)   Explain selection sort method for the given array elements.   **6**
7   3   8   4   1   16   5   12   10   19

   b)   Write a program to sort the elements of an array using Bubble sort method.   **7**

OR

8.   a)   Explain insertion sort technique with suitable example.   **6**

       b)   Write a program to search the element using binary search method.   **7**

9.   a)   Explain the stack, using stack related operation like PUSH, POP, STACK TOP & EMPTY.   **6**

       b)   Write a function to insert a node and delete a node, from any position in the linked list.   **7**

OR

10.   a)   State and explain the concept of linear queue. Write an algorithm for addition and deletion of this structure.   **7**

       b)   Explain the dynamic memory allocation.   **6**

11.   a)   Draw a binary tree whose in order traversal sequence and post-order traversal sequences is as follows :   **4**
Inorder : DBEAFC
Postorder : DEBFCA

       b)   Give the array representation of binary trees with suitable example.   **6**

       c)   Draw the binary tree for the given arithmetic expression.   **4**
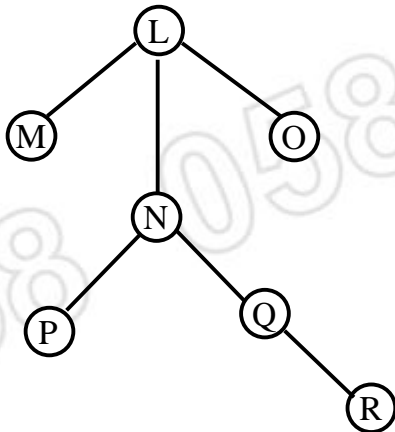$(a + (b * c)/(d * e))$

OR

12. a) Convert the following trees into Binary. **6**
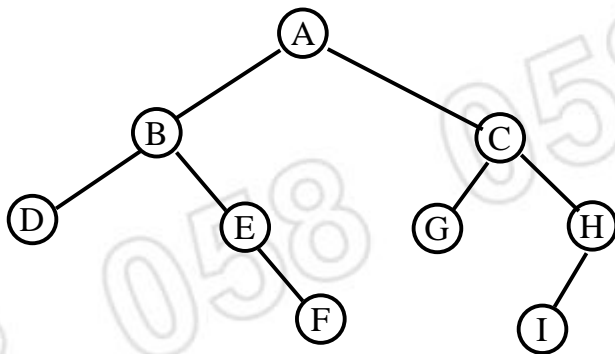
i)
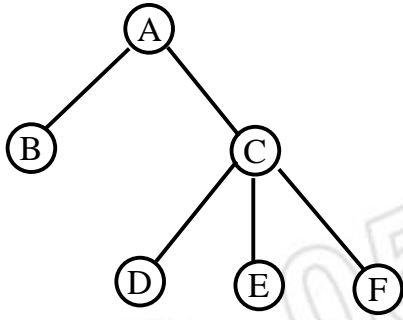
ii)
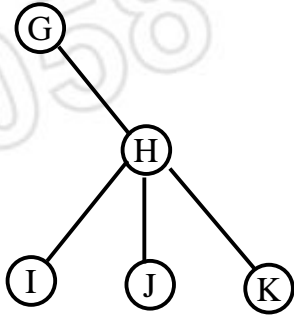
iii)

b) Explains threaded binary tree. Draw the threaded inorder and threaded postorder binary tree for the given binary tree. **8**

****

www.solveout.in