

Object Oriented Programming & Data Structure

P. Pages : 2

Time : Three Hours



NKT/KS/17/7215/7220

Max. Marks : 80

- 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 benefits and application of OOPs. 6
- b) Write a program to declare a class student with members name, roll_no, address, take the data of two student and display the information. 7

OR

2. a) Explain the following giving an example of each. 7
- | | |
|--------------------|----------------------|
| i) Object | ii) Class |
| iii) Encapsulation | iv) Data Abstraction |
- b) Explain constructor and destructor with an example. 6
3. a) Explain the rules for overloading the operator. 7
- b) Explain function overloading with an example. 6

OR

4. a) Write a program to overload the operator '+'. 7
- b) Write a program to find length of a string using operator overloading. 6
5. a) Explain multilevel inheritance in detail with an example. 7
- b) Explain run-time polymorphism using virtual function. 6

OR

6. a) Create derived classes as an engineering, Science and medical from student class. Create their object and process them. 8
- b) Explain virtual base class with an example. 5

7. a) Write a program to implement bubble sort technique. 7
b) Write a program to implement selection sort technique. 6

OR

8. a) Explain the Radix sort with suitable example. 6
b) Sort the following array. 24, 9, 3, 48, 61, 2, 19, 55, 7, 21. 7
Using. i) Insertion sort.
ii) Bubble sort.
9. a) Write a C++ function to delete an element from the linked list. 5
b) Explain the concept of queues using link list and what operations can be performed on queues. 9

OR

10. a) What is Dynamic memory Allocation? 7
Explain in briefly with an example.
- b) Write a program in C++ to insert and delete following element from keyboard in Queue and display on the output 7
Screen : A, B, C, D, E.
11. a) Explain the array representation of binary tree. 3
b) Explain threaded binary tree. 3
c) Construct a Binary-tree whose in-order and pre-order traversal are as follows: 8
Inorder : 20, 30, 40, 25, 50, 125, 175, 150, 100.
Preorder : 20, 25, 30, 40, 50, 100, 125, 150, 175.

OR

12. a) Explain the Binary search tree implementation with an example. 7
b) Explain the iterative process for preorder traversal of a binary tree, with suitable example. 7
