QUESTION BANK 2 MARKS AND 16 MARKS
EC 2202 — DATA STRUCTURES AND OBJECT ORIENTED PROGRAMMING IN C++

UNIT I

PART-A

1. What is an identifier?Give example.
2. What is a token?Give example.
3. What is an expression?Give example.
4. Mention the use of function?
5. What is a) class b)object?
6. Define a) contructor b)destructor.
7. Mention about operator overloading.
8. What is the use of Operator overloading?
9. What is the use of scope resolution operator?
10. What is a friend function and virtual function?

PART – B

1.(i)Explain briefly about the various data types used in C++.
(ii)Explain Tokens and Expressions in detail.
2.(i)Discuss about functions with an eg and their use.
(ii)What happens when a function call is made in a program?
3.(i)Explain about classes and objects in C++ with an eg?
(ii)How to define a member function in a class?
4.Explain about a Constructor in detail.
5. Explain about operator overloading in detail.
6. Explain about destructors in detail.
7. Explain about the operators used in C++ in detail.
8. Explain about control structures in detail.

UNIT-II

PART –A

1. Define Inheritance.Give Eg.
2. What is an abstract class?
3. What is the use of seekg() and seekp()?
4. What is a pointer? What are the types of pointers?
5. Define Virtual function.
6. Define Polymorphism.
7. Write about Templates.
8. Define Exception handling
9. How strings can be manipulated?
10. What is a pure virtual function?

Part –B

1. Explain about inheritance and its type in detail with examples.
2. Write in detail about extending classes.
3. Explain the need of pointers,its use, in detail.
4. Explain Virtual function with an example.
5. Briefly explain about i)array of pointer ii)pointer to a function iii)pointer to object iv)this pointer
6. Write a note on Exception handling.
7.Explain about class and function templates?
8.Explain the classes for file stream operations.
9. Explain the working of files.

UNIT III

PART-A

1. What is an algorithm? Give example
2. What is datastructure? what are its type.
3. What is a stack?
4. Write about Queue datastructure?
5. What are the various types of Linked list?
6. What are priority queues?
7. Define binary heap?
8. Define hashing?
9. What are the applications of binary heaps?
10. Write about heap order property and structure propery.
11.What is a skew heap?
12.Write about leftist heaps.

PART-B

1. (i) Explain the insertion and deletion operation in Stacks
(ii) Describe the various applications of stack
2. Describe Queue and its operation with suitable eg.
3. Explain about Linked list , its Types ,insertion and deletion routines with suitable egs.
4. (i) Briefly explain priority queues
(ii)Briefly explain about binary heaps and its application.
5. (i) Explain significance of Hashing.
(ii)Explain about various types of hashing.

UNIT-IV

PART A

1. Define a tree?
2. Define a binary tree?
3. Give the three types of traversals.
4. Define AVL tree.
5. What is a Graph? Give example.
6. What is a minimum spanning tree?
7. Give the list representation of Graph?
8. What are undecidable and recursively undecidable problem?

9. What is meant by traveling salesman problem?
10. What is NP-completeness?

Part-B

1. Write notes on
i) Implementation of Binary tree.
ii) Expression tree.
2. Explain search tree ADT.
3. Discuss AVL trees with example.
4. i)Write in detail about topological sort.
ii) Explain Dijkstra's algorithm with example.
5. i)Discuss about single source shortest path problem?
ii) Discuss about Unweighted shortest path problem?
6. Explain a simple maximum flow algorithm in detail.
7. Explain NP-Completeness problem with suitable example.
8. Explain Prim's Algorithm with Example?
9. Explain Kruskal's Algorithm with Example?

UNIT-V

PART-A

1. What is sorting? what are its type.
2. What is the difference between internal & external sorting?
3. Give example for Bucket Sort?
4. What is multimerging?
5. What is meant by divide and conquer technique?
6. What is Optimal binary search tree?
7. Mention about insertion sort
8. State the role of pivot element in quick sort.
9. Give examples for internal & external sorting?
10. Describe about dynamic programming.

Part-B

1. i)Explain insertion sort with example.
ii)Write a note on shell sort with example.
2. i)Discuss briefly about heap sort with example
ii)Explain Merge sort with Example.
3. Explain Quick sort in detail with an eg.
4. Explain Greedy algorithm with an example.
5. Explain about All pair shortest path algorithm.
6. Explain about Divide and Conquer technique in detail with an example.

UNIVERSITY QUESTION

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2010

Third Semester

Electronics and Communication Engineering

EC 2202 — DATA STRUCTURES AND OBJECT ORIENTED PROGRAMMING IN C++

(Regulation 2008)

Time : Three hours Maximum : 100 Marks

Answer ALL questions

PART A — (10 × 2 = 20 Marks)

1. What effects do the visibility labels private, protected and public have on the members of a class?
2. What are the advantages of operator overloading?
3. What is inheritance? What are its advantages?
4. Define virtual function.
5. Define stack. Mention the operations on stack.
6. What is binary heap? What are its types?
7. What is meant by an adjacency matrix?
8. State the properties of binary search tree.
9. What is sorting? How is sorting essential for data base applications?
10. What is meant by dynamic programming?

PART B — (5 × 16 = 80 Marks)

11. (a) (i) Compare and contrast Structured Programming and Object Oriented Programming. (8)
(ii) Distinguish between Data Encapsulation and Data Abstraction. (4)
(iii) Mention the purpose of Constructor and Destructor functions. (4)

Or

(b) (i) Explain the control structures of C++ with suitable examples. (12)
(ii) Define function overloading with a simple example. (4)

12. (a) (i) Differentiate inheritance from polymorphism. (6)
(ii) Write a C++ program to illustrate the concept of hierarchical inheritance. (10)

Or

(b) (i) What is the use of template? Write an overloaded function template called max( ), which will
find the maximum of any two given integers. (8)
(ii) Explain the exception handling mechanism of C++ in detail. (8)

13. (a) (i) Explain the operations performed on queue in detail. Write a C++ program to implement
these queue operations. (10)
(ii) Explain insertion, deletion and replacement of nodes in a heap. (6)

Or

(b) (i) What are the advantages of linked list over array? (4)
(ii) Define Hashing. (2)

(iii) Write a C++ program to implement stack through linked list. (10)
14. (a) (i) Write an algorithm to traverse binary tree level by level, with each level of the tree being
traversed
from left to right. (10)
(ii) Explain spanning tree and minimal spanning tree with examples.(6)
Or
(b) (i) Define AVL tree. Explain the operations on AVL tree with illustrations. (6)
(ii) Explain breadth first search algorithm for the traversal of any graph with suitable examples. Define
time
complexity of the algorithm. (10)
15. (a) (i) Explain heap sort with an illustration. (8)
(ii) Explain the greedy algorithm to find minimum spanning tree. (8)
Or
(b) (i) Explain the insertion sort with its time complexity. (8)
(ii) Explain as to how divide and conquer technique can be applied for merge sort. (8)

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2011
Third Semester
Electronics and Communication Engineering
EC 2202 — DATA STRUCTURES AND OBJECT ORIENTED PROGRAMMING IN C++
(Regulation 2008)
Time : Three hours Maximum : 100 Marks
Answer ALL questions

PART A — (10 × 2 = 20 Marks)

1. Define polymorphism
2. What is the use of construction?
3. List the different types of inheritance supported in C++.
4. Define pointers.
5. What are the disadvantages of DLL over SLL?
6. What is hashing?
7. Define binary tree with example.
8. What is meant by weighted graph?
9. Write the program for insertion sort.
10. Define shell sort.

PART B — (5 × 16 = 80 Marks)

11. (a) Explain in detail about classes and objects with example. (16)

Or

(b) With general syntax and example describe the operating overloading for unary and binary operators in detail. (16)

12. (a) Describe in detail about virtual classes and abstract classes. (16)

Or

(b) (i) Write short notes on virtual functions. (8)

(ii) Differentiate Static polymorphism and Dynamic polymorphism. (8)

13. (a) Explain the Basic operations to performed on linked lists in details. (16)

Or

(b) Explain stack ADT in detail with suitable examples and general syntax. (16)

14. (a) Describe in detail about the shortest path algotith. (16)

Or

(b) Explain Prim's algorithm in detail with proper example. (16)

15. (a) Explain in detail about merge sort and quick sort with examples. (16)

Or

(b) Write short notes on

(i) Greedy algorithm (8) (ii) Divide and Conquer algorithm (8)