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B.E / B.Tech (FT) END SEMESTER EXAMINATIONS – APRIL / MAY 2019

INFORMATION TECHNOLOGY

Third Semester

IT 8303 Programming and Data Structures II

(Regulation 2012)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Define the term: Data abstraction and Encapsulation.
2. What is the role of 'this' pointer.
3. What is meant by polymorphism?
4. What is a virtual function?
5. Explain how exceptions are handled in C++?
6. What is an iterator in C++?
7. What is a binomial heap? List out the properties of Min-heap.
8. How amortized analysis is carried out in potential method?
9. Write the procedure for Depth First Search.
10. What is a spanning tree and minimum spanning tree?



Part – B (5 x 16 = 80 marks)
(Question No.11 is Compulsory)

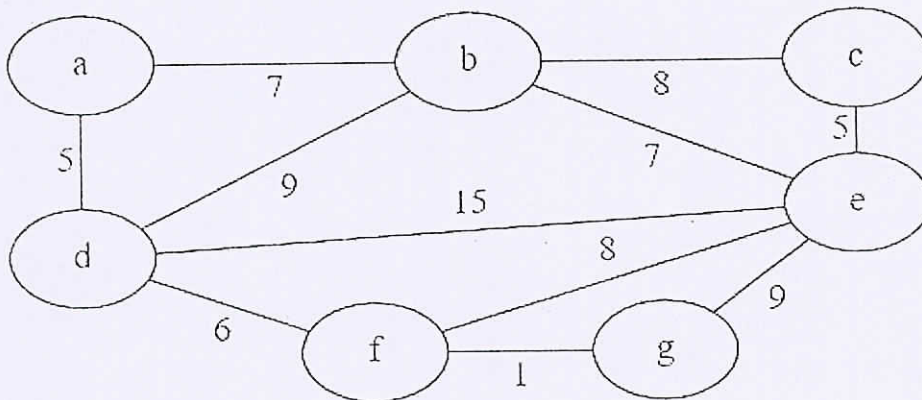
11. What is a function in C++? Explain the types of functions with illustrative examples.
12. a) What is meant by function overloading? Illustrate the concept of function overloading with at least two examples.
(OR)
b) Explain how dynamic memory allocation is done in C++? Give at least two examples of dynamic memory allocation. .
13. a) How file handling is carried out in C++? Write a C++ program to read a text file and construct a histogram based on the frequency of words present in the file.
(8+8 marks)
(OR)
b) Explain the STL libraries of C++. Explain the concept of containers and iterators with at least two examples.

14. a) What is an AVL Tree? Explain the algorithms for inserting and deleting an element in AVL tree with the appropriate rotations.

(OR)

- b) What is a Disjoint set? Write the algorithms for insertion, deleting and finding an element in Disjoint sets with an example.

15. a) Explain Kruskal minimum spanning algorithm. Apply Kruskal algorithm for the following graph to obtain minimum spanning tree.



(OR)

- b) Explain Dijkstra Shortest path algorithm. Apply the shortest path algorithm to find the shortest path from 'a' to 'e' using Dijkstra approach.

