Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80287

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Third Semester

Computer Science and Engineering

CS 6301 — PROGRAMMING AND DATA STRUCTURES – II

(Common to Information Technology)

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the various storage classes available in C++.
2. Mention the role of this pointer.
3. Give the list of operators that cannot be overloaded.
4. Differentiate compile and run time polymorphism.
5. What is an abstract class?
6. What is a function adaptor?
7. State the uses of virtual functions.
8. Write a note on amortized analysis.
9. Define minimum spanning tree for a graph.
10. List the drawbacks of Floyd-Warshall algorithm.

PART B — (5 × 13 = 65 marks)

11. (a) (i) Explain features of object oriented programming in detail. (7)

(ii) Discuss the types of constructors with examples. (6)

Or

(b) (i) What do you mean by static member function? Explain in detail with an example. (7)

(ii) Give a detailed note on const member function. (6)

12. (a) Describe in detail dynamic memory allocation in C++ with examples. (13)

Or

(b) Explain the types of inheritance in detail. (13)

13. (a) (i) Write short notes on C++ exception handling. (7)

(ii) Write a C++ program to write a set of characters to a file. (6)

Or

(b) Explain in detail about different STL containers. (13)

14. (a) Explain the possible AVL rotations with algorithm and example. (13)

Or

(b) Explain insertion and deletion operations on Fibonacci heaps. Construct Fibonacci heaps for the following set of elements 10, 11, 5, 35, 8, 4, 2, 3, 77, 1, 45. (13)

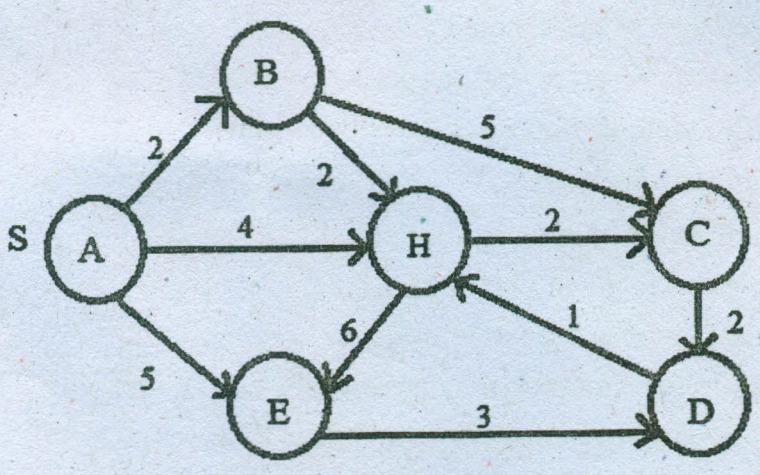
15. (a) Present the pseudocodes of the different graph traversal methods and demonstrate with an example. (13)

Or

(b) Explain how transitive closure of a graph can be found using Warshalls algorithm. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Using Dijkstra's algorithm find the shortest path from the source node A. (15)



Or

(b) Write a C++ generic function with multiple parameters that performs recursive binary search on a linear array. (15)

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