

R16

Code No: 133AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year-I Semester Examinations, November/December - 2018

DATA STRUCTURES THROUGH C++

(Common to CSE, IT)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

- 1.a) What are the input and output statements in C++? [2]
- b) What is destructor? Explain. [3]
- c) Discuss about two dimensional arrays. [2]
- d) What is stack? What are the operations performed on stack? [3]
- e) Define a max heap. [2]
- f) What are the properties of binary tree? [3]
- g) What is rehashing technique? [2]
- h) Compare linear search and binary search. [3]
- i) What is undirected graph? Give its properties. [2]
- j) What are the applications of graphs? [3]

PART-B

(50 Marks)

- 2.a) What is an exception? Discuss about throwing an exception and handling an exception. [5+5]
- b) Explain about call by reference technique. [5+5]

OR

- 3.a) Explain new and delete operators with an example programs. [5+5]
- b) What is polymorphism? Explain. [5+5]

- 4.a) Discuss about linked implementation of queue ADT. [5+5]
- b) How to evaluate postfix expression? Explain. [5+5]

OR

5. Define and explain about circular queue and its operations with an examples. [10]

- 6.a) Explain the linked representation of a threaded binary tree. [5+5]
- b) Differentiate between full binary tree and complete binary tree. [5+5]

OR

- 7.a) Define tree. Explain all terms associated with trees. [5+5]
- b) What are various operations that can be performed on a binary tree? Explain. [5+5]

- 8.a) Discuss the concept of quick sort with an example. [5+5]
- b) Explain the concept of merge sort in detail. [5+5]

OR

- 9.a) What is searching? Discuss various types of searching technique. [5+5]
- b) Explain the concept hash table with an example. [5+5]

- 10.a) Explain in detail about balanced binary trees.
b) Explain in brief about AVL trees.

[5+5]

OR

- 11.a) Discuss in detail about red-black trees.
b) Compare various search trees.

[5+5]

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