

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- JUNE -2016

B.Tech/ 2<sup>nd</sup> Semester

COURSE CODE: 14B21CI211

MAX. MARKS: 35

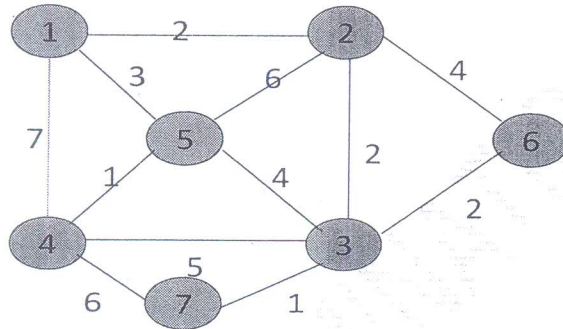
COURSE NAME: BASIC DATA STRUCTURES

COURSE CREDITS: 04

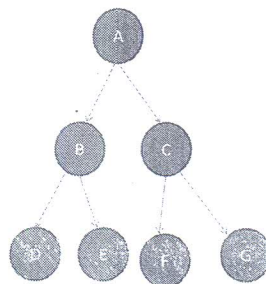
MAX. TIME: 2 HRS

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. XXXXXXXXXXXXXXXXXXXXXXX*

1. Show the adjacency list and adjacency matrix for the following graph (5)



2. Explain Breadth First Search with example. (5)
3. Arrange the following list in ascending order using quick sort (5)
- 20,35,40,100,3,10,15,55,77,80, 45, 67, 8, 40, 55
4. Write the pre order and in order traversal of the following tree. (5)



5. Write the code to delete an element from a heap (5)
6. What is a priority queue? Write an algorithm to create a priority queue (5)
- 7 Answer the following (5 marks, each question 1 mark each)
- i. What is meant by a strongly connected graph?
  - ii. In a circular linked list, how is the end of list condition checked?
  - iii. What do you understand by time space tradeoff?
  - iv. What are the properties of a binary tree
  - v. Queue is a special type of list? Comment. How does an array based queue compare with linked queue?