

TRIBHUVAN UNIVERSITY
FACULTY OF MANAGEMENT

Office of the Dean
September 2017

Full Marks: 40
Time: 2 hrs.

BIM / Fourth Semester / IT 218: Data Structure and Algorithm with JAVA

Candidates are required to answer all the questions in their own words as far as practicable.

Group "A"

Brief Answer Questions:

[10 × 1 = 10]

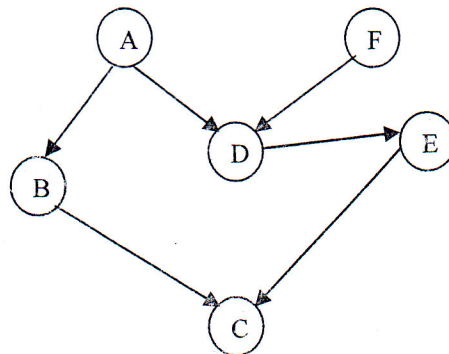
1. What is doubly linked list?
2. What do you mean by cut vertex?
3. Define spanning tree.
4. What is circular queue?
5. Why worst case complexity is mostly used in algorithm design than best and average case complexity?
6. Define nested recursion.
7. What is hashing? Write down various approaches used for resolving hash collision.
8. Define skip list.
9. What do you mean by order of B tree?
10. What is heap?

Group "B"

Exercise Problems:

[5 × 4 = 20]

11. Write a Java function to insert element into queue.
12. Create heap tree from given data and sort it using heap sort: 12, 23, 44, 56, 33, 67, 37.
13. Write a Java function to delete an element at any position from circular linked list.
14. Sort the following given data using Quick sort algorithm.
5, 66, 3, 8, 91, 45, 88, 91, 33
15. Write all possible topological sorts from given graph.



Group "C"

Comprehensive Answer Questions:

[2 × 5 = 10]

16. What is problem with Binary tree? Explain self-adjusting tree with example.
17. What is the limitation of B-tree? How is element of B tree deleted? Explain with example.

