

TRIBHUVAN UNIVERSITY
FACULTY OF MANAGEMENT

Office of the Dean
September 2018

Full Marks: 40
Pass Marks: 18
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. Define data structure.
2. How does stack differ from queue?
3. Why is doubly linked list better than singly linked list?
4. List the advantages of recursion over loop.
5. What is Binary Search Tree?
6. What is multi-way tree?
7. Define weighted graph.
8. In how many ways graph can be represented in computer?
9. What is tail recursion?
10. List the different types of hash function.

Group "B"

Exercise Problems:

[5 × 4 = 20]

11. Write java functions to demonstrate push, pop and traversal operations of a stack.
12. Write a java function to insert an element at specific position in a doubly linked list.
13. Create a max heap from the following: Show all steps.
17, 27, 16, 29, 35, 20, 75, 18, 35
14. Write a hash function to insert element to list.
15. Sort the following data using Radix Sort: Show all steps.
23, 76, 53, 40, 67, 1, 213, 21

Group "C"

Comprehensive Answer Questions:

[2 × 5 = 10]

16. What is B tree? What are the benefits of B tree over Binary Search tree?
17. How cycle in a graph can be detected? Explain depth first search.

