M.Sc. (IT) Semester – I Examination
Nov/Dec-2014
Paper No. 3: Data Structures and Algorithm (2738)

Duration: 2½ Hours   **Total Marks: 70**

Q-1	(A)	What do mean by data structure? Define all types of data structure classifications.	07
Q-1	(B)	Define ADT and explain them with examples.	07
		OR	
Q-1	(A)	Explain: Primitive and non-primitive data types with example.	07
Q-1	(B)	Differentiate linear and nonlinear data structures with example.	07
Q-2	(A)	What is an Algorithm? Explain comparison of two algorithms with example.	07
Q-2	(B)	Explain: Top Down and Bottom Up approaches in algorithm design.	07
		OR	
Q-2	(A)	Define the steps to keep in mind while designing an algorithm.	07
Q-2	(B)	Write and explain any two different algorithms to sort 10 integers.	07
Q-3	(A)	What is an array? Explain two dimensional arrays with example.	07
Q-3	(B)	Write an algorithm for matrix multiplication using array.	07
		OR	
Q-3	(A)	Explain row major and column major in array with example.	07
Q-3	(B)	What is sparse matrix? Explain sparse matrix representation using array.	07
Q-4	(A)	Write an algorithm to perform stack operations using array.	07
Q-4	(B)	Differentiate LIFO and FIFO.	07
		OR	
Q-4	(A)	Write an algorithm to perform queue operations using link list.	07
Q-4	(B)	Write a short note on types of queue.	07
Q-5	(A)	Explain with example data representation of singly link list.	07
Q-5	(B)	Write a short note infix, prefix, postfix expressions.	07
		OR	
Q-5	(A)	Explain to convert infix expression to postfix, postfix to prefix expression using stack.	07
Q-5	(B)	Explain with example data representation of doubly link list.	07