Course Title:	Data Structure and Algorithm			Course Code:	CSC211	Credit Hours:	4
Course Instructor:	Sundas Amin			Programme		BSSE	
Semester:	3rd	Batch B10	Section:	A	Date:	24-06-2019	
Time Allowed:	3 Hours			Maximum Marks:		50	
Student's Name:	AHMER IQBAL			Reg. No. CIIT/SP18–BSE–002 /VHR			

Important Instructions / Guidelines:
Read the question paper carefully and answer the questions according to their statements.
Mobile phones are not allowed. Calculators must not have any data/equations etc. in their memory.

Terminal Examination Spring 2019

Q# 1. Answer the short questions, each question carry equal marks. (10)
  I. Define asymptotic notations
  II. Define the term recursive algorithm.
  III. Analyse the time complexity of quick sort.
  IV. Differentiate between merge sort and insertion sort.
  V. Differentiate between binary search and sequential search.

Q# 2. What is priority queue? Write a program to implement the priority queue. (6)
  It should supports the following three operations:
  i. PushElement(): Insert an item to the queue with associated priority.
  ii. PopElement(): Remove the element from the queue which has highest priority and return it..
  iii. PeekAtNext(): Get the item with highest priority without removing it.

Q#3. Write down the Fibonacci function. Also give the best case and worst case analysis of fibonacci function. (6)

Q#4. Write a C++ program to check balanced parentheses using stack. (5)
  Remeber the following conditions:
  i. ( ) : balanced brackets
  ii.) (: unbalanced brackets
  iii. { ( ) ( ) } : balanced brackets

Q# 5. Define quick sort. Write a program that takes last element as pivot, places the pivot element at its correct position in sorted array, and places all smaller (smaller than pivot) to left of pivot and all greater elements to right of pivot. (6)

Q#6. Define the binary search tree. Write down the functions to insert and search a node in binary search tree. (7)

Q#7. Define graph. Also Differentiate between Depth first search and depth first search with suitable example. (5)

Q#8. Define hashing, hash Function and collision. Explain different method that used to calculate hash functions. (5)

_____The End_____