**Advanced Programming- CA1 – HDCSDEVICTSEP**

**QUIZ 1 (30 minutes)**

(Online, 10 marks each question. Answer ALL ten questions)

1. Big O notation tells (10 marks)
2. how the speed of an algorithm relates to the number of items.
3. The execution time in seconds of an algorithm for a given size data structure.
4. the execution time of an algorithm for a given number of items.
5. how the size of a data structure relates to the number of code lines.

Ans: A

1. O(N) means that a statement operates in \_\_\_\_\_\_\_\_\_ time. (10 marks)
2. 1 second
3. constant
4. linear
5. 0.1 seconds

Ans: C

1. Choose the Big-O notation (complexity) for the following equation: n4 – 3n2+6n+3.

(10 marks)

1. O(N)
2. O(N2)
3. O(1)
4. O(N4)

Ans: D

1. Indicate the Big –O notation ( complexity) of the following piece of code: (10 marks)

int total = 0;

for ( int i = 0; i < n; i++) {

if (i<5)

total = total+i;

else

for(int j=0;j<m;j++)

total = total+i\*j;

}

1. O(N\*M)
2. O(N)
3. O(M)
4. O(N3)

Ans: A

5) Which of the following statements is false?

1. Exception handling enables programmers to write robust and fault-tolerant programs.
2. Exception handling can catch but not resolve exceptions.
3. Exception handling can resolve exceptions.
4. All of the above are true.

Ans: C

(10 marks)

6) Which of the following statements is false?

a) A finally block is placed after the last catch block.

b) A finally block typically releases resources acquired in the corresponding try block.

c) The finally block and try block can appear in any order.

d) A finally block is optional.

Ans: C

(10 marks)

7) In a weighted graph, the minimum spanning tree (MST) tries to minimize

a) the number of edges from the starting vertex to a specified vertex.

b) the number of edges connecting all the vertices.

c) the total weight of the edges from the starting vertex to a specified vertex.

d) the total weight of edges connecting all the vertices.

(10 marks)

Ans: D

8) The rule in Dijkstra’s algorithm is to always put in the tree the vertex that is closest to the starting vertex.

Ans: True

(10 marks)

9) An undirected graph must have a cycle if

a) any vertex can be reached from some other vertex.

b) the number of paths is greater than the number of vertices.

c) the number of edges is equal to the number of vertices.

d) the number of paths is less than the number of edges.

Ans: C (just learn definition)

(10 marks)

10) Which of the following algorithms can be used to most efficiently determine the presence of a cycle in a given graph ?

a) Depth First Search

b) Breadth First Search

c) Dijkstra Algorithm

d) Floyd's Algorithm

(10 marks

Ans: A