**WIA1002/WIB1002/WXES1117 Data Structures**

**Tutorial 10: Queue**

1. Name 4 everyday examples of a queue other than those discussed during lecture.
2. What is the difference between a queue and stack?
3. Use the following code segment to answer parts (a) through (c)

Queue<Integer> q = new Queue<Integer>();

Scanner keyIn = new Scanner(System.in);

for (int i = 1; i <= 5; i++)

{

if (keyIn.nextBoolean())

System.out.print(i + " ");

else

q.enqueue(i);

}

}

while (!q.isEmpty())

System.out.print(q.dequeue() + " ");

System.out.println();

1. What is the output for the following input sequence?

true false false true true

1. Is it possible to have output: 1 3 5 4 2 If yes, give an input sequence that produces the output; if no, explain.

.

(c) Give at least three input sequences that produce the output: 1 2 3 4 5

1. Hand trace a queue X through the following operations:

X.enqueue(new Integer(14));

X.enqueue(new Integer(3));

X.enqueue(new Integer(5));

Object Y = X.dequeue();

X.enqueue(new Integer(7));

X.enqueue(new Integer(9));

Y = X.dequeue();

X.enqueue(new Integer(2));

X.enqueue(new Integer(4));

Given the resulting queue X above, what would be the result of each of the following?

1. X.front();
2. Y = X.dequeue();

X.enqueue(new Integer(10));

X.front();

1. Y = X.dequeue();
2. X.front();