

WIA1002/WIB1002 Data Structure**Tutorial: LinkedList****Question 1**

- a) Assume that a node class called Node<E> exist. Create two nodes called node1 and node2. Node1 contains alphabet 'a' and node2 contains alphabet 'z'. Also, create 2 references, head and tail. Let head points to node 1 and tail points to node 2.
- b) Draw the nodes from (a).
- c) Write a statement/code for node1 accessing the node2. Modify 1(b) to show this.
- d) Create a new node, firstNode. Add this new node at the first location of all existing nodes. Draw these nodes.
- e) If we have no information about the status of a linked-list, what are the conditions we need to consider to perform the operation in (d)?
- f) Write a list of operations/steps/pseudocode needed to add the firstNode to the first location.
- g) Write codes to assign the firstNode to the first location.
- h) Repeat (d) – (f), for the following operations :
 - i. addLast() – value of element, c
 - ii. add(int index, E e) – value of element, d
 - iii. removeFirst()
 - iv. removeLast()
 - v. remove(int index) – remove at index 1

Question 2

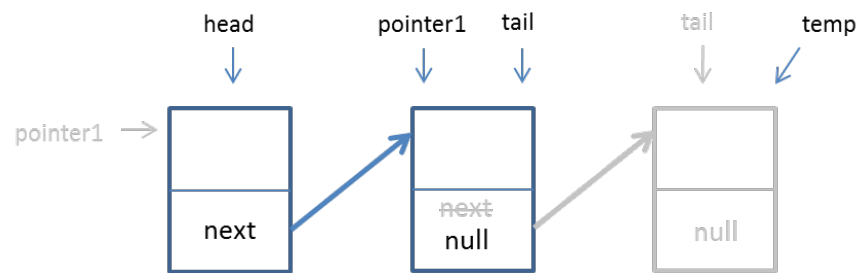
Given is a method containing incorrect statements that checks if an element is in a list.

```
public void operationX(E e) {  
    pointerB.next = pointerB;  
  
    for(int i++; i>size; int i) {  
        System.out.println(current.element);  
        if(current.element = e)  
    }  
  
    Node<E> pointerB = head;  
    return false;  
}
```

- a) What is the name of the method for operationX?
- b) Correct the statements by rewriting them in the correct order and syntax. Write the correct/right method name to replace operationX.

Question 3

Given the following nodes. Answer the following:



- Based on the above figure, what is the name of the method for above operation?
- Write codes to represent the above figure. (Kindly use the variables stated in the figure)