1.1 What are the problems of performing

- Insertion in the middle

- Removing elements from the beginning

1.2 What are the impacts of storing huge number of integers in array? (2

## QUESTION 3:

[6 marks]

3.1 What is the worst case of complexity of linear search algorithm? When it occurs? (3 marks)

3.2 Here is an array with 15 elements:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

Suppose that we are doing a binary search for an element. Which elements can be found by making three or less comparisons? (3 marks)

## QUESTION 1:

1.1 What are the problems of performing the following operations in an Array? (3 marks)

- Insertion in the middle

- Removing elements from the beginning

1.2 What are the impacts of storing huge number of integers in array? (2 marks)

## QUESTION 2: [9 marks]

2.1 When it is appropriate to use the data structure Linked List? What is the major disadvantage of Linked List? (3 marks)

Is it easier to insert a new node before or after a specified node in a linked list? Why? (2 marks)

2.3 If the items in a list are structures taking 400 memory locations each, compare the amount of space required altogether and determine which data structure you will use if (a) the list is kept contiguously in an array 90 percent full (b) the list is kept contiguously in an array 60 percent full and (c) the list is kept as a linked list (where the pointers take one memory location each) (4 marks)

**3.2 Here is an array with 15 elements:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

**Suppose that we are doing a binary search for an element. Which elements can be found by making three or less comparisons?** (3 marks)

[redacted] hole

1.2 What are the impacts of storing huge number of integers in array? (2 mark

## QUESTION 2:

to use the data structure Linked List?

**2.2** ***Is it easier to insert a new node before or after a specified node in a linked list? Why? (3 marks)***