QUESTION 1

a) Assuming an array named `list` is initialized as shown in Figure 7.

8.2	2.5	6.6	9.0	3.4	4.5

Figure 7

i) Write an appropriate declaration for array `list` and initialize it to the values given in Figure 7.

(2 marks)

ii) Identify the values assigned to `x` and `y` in Figure 8, after each of the following statement is executed.

```
x = list[0] + list[4];
y = list[3] / 2 * list[2];
```

Figure 8

(2 marks)

b) Write a C++ program segment to print the index of the largest and smallest numbers in an array `intList` of 10 integers. Assume that an array `intList` already has values assigned to each element.

(6 marks)

QUESTION 2

d) Assume that the following C++ program segment is syntactically correct as shown in Figure 5.

```
int buffer[10], count;
for(count = 0; count <= 10; count++)
   cin >> buffer[count];
```

Figure 5

i) Determine the number of elements to be entered into array `buffer[]`.

(1 mark)

ii) Modify the program segment in Figure 5 to initialize all the elements of array `buffer[]` to 1.

(3 marks)

QUESTION 3

Study the code segment written in C++ below and answer questions that follow:

```
int score [] = {78, 52, 61, 49, 88, 59, 80};
cout<<score[1]<<"\t"<<score[4]<<"\t"<<score[6]<<endl;

int i = 0;
while(i <= p)
{
      if(score[i]%2 != 0)
            score[i] = 99;
      else if (i%2 !=0)
            score[i] += 8;

     cout<<score[i]<<"\t";
      i++;
}
```

(a) `p` is the terminal value to stop the loop for the code segment given above. What is the value of `p`?

(1 mark)

(b) What is the output of the above program segment?

(5 marks)

QUESTION 4

a) Declare an array to store the marks of 100 students and then write the code to input data into the array.

(3 marks)

b) Write the code to calculate the average of marks of the students.

(3 marks)

c) Write the code to count and display the number of students whose marks are below the average.

(4 marks)

QUESTION 5

Number [30]	309
Number [31]	10
Number [32]	203
Number [33]	49
Number [34]	54
Number [35]	609
Number [36]	33

Figure 1: Contents of an array named `Number`

Figure 1 given above represents some of the contents of an array named `Number` of size 100. Determine and draw the latest contents for the array `Number` for the indexes from 30 until 36 as depicted in the figure after these statements are executed.

```
int i = 4;
Number [40] = 20 + 54 * 2;
Number [4 * i * 2] = Number [3 * 2 * 5] + 20;
Number [36 - 5] = 45 + Number[40];
Number [2 * 20] = 75;
Number [34] = 100 + Number[40];
Number [75] = 303;
Number [10 + 26] = Number[2 * 30 + 15] + Number[40];
```

(5 marks)

QUESTION 6

SMK Sultan Yussuf will be conducting a programming competition next month. Thus, you as the IT teacher was appointed to develop a simple program in calculating the highest number of questions answered and the average number of questions answered for this competition. The program is also able to display the number of questions answered for all the participants. Currently, the total number of participants registered for this programming competition is 150.

(5 marks)

QUESTION 7

a) Given a logical diagram:

	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]
list	16	30	24	7	62		5	55

What is the result for `list [5] = list [1] + list [6];`?

(3 marks)

b) Given logical representation of an array `marks`.

```
int mark [5] = {50, 45, 88, 71, 97};
```

Write the program segment that do the following tasks:

i) Change value of 5th element to 99.

(2 Marks)

ii) Accept input from user and insert it at 5th position.

(2 Marks)

iii) Swap first and last element.

(4 Marks)

iv) Calculate the average of array `mark`.

(4 Marks)

QUESTION 8

Given logical representation of an array `weight`:

	0	1	2	3	4	5
weight	33.4	35.6	34.5	35.0	37.5	36.4

a) Declare and initialize an array named `weight` type `float` based on the above diagram.

(3 marks)

b) Write a C++ program segment to do the following tasks:

i. Determine and display the lowest weight.

ii. Determine and display the average weight.

(7 marks)