SECTION B – PROGRAMMING QUESTIONS   **[34 MARKS]**

Answer All Questions (2 Questions).

QUESTION 1 [20 Marks]

A palindrome is a string of characters that reads the same forwards as backwards. For example, the following are both palindromes:

<div align="center">

1457887541 madam

</div>

Write a proper program that prompts the user to input a string of a size 50 characters or less. Your program should then determine whether or not the entered string is a palindrome. Next, a message should be displayed to the user informing them whether or not their string is a palindrome. Then, the program should then ask for the next input data.

You are allowed to use predefined functions such as `strlen(...)` to trace the length of a word (the string input) or any related predefined function. The distribution of assessment criteria is shown in Table 1 below.

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Table 1

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Item	Criteria	Mark
1	Applying proper styles (e.g., programmer's name, indentation & any related comments/prompts)	2
2	Applying proper preprocessor directive	2
3	Applying proper declaration of C-String & other variables	3
4	Applying proper input	2
5	Applying proper predefined functions	2
6	Applying proper selection	4
7	Applying proper repetition	5

QUESTION 2 [14 Marks]

The input of 10 elements for the array are 1, 1, 2, 3, 4, 5, 6, 7, 8 and 9. Write a program in C
to;

a) Read and store 10 elements in an array. Print out all elements in array in reverse order.
   Find and print the maximum and minimum element in an array.

   (5 Marks)

b) Copy the elements of one array into another array. Separate odd and even integers in
   separate arrays.

   (3 Marks)

c) Calculate and print sum, average and standard deviation (SD) of all elements in the
   array.

$$SD = \sqrt{\frac{\sum |x - \mu|^2}{N}}$$

   (6 Marks)