IT No.....

PC No. .....

Sri Lanka Institute of Information Technology

B.Sc. Degree
in
Information Technology

Final Examination
Year 1, Semester 1 (2017)
January Intake

Introduction to Programming (C / C++) (N102)

Duration: 2 Hours

Instructions to Candidates:

- This is an **online closed book** examination.
- This paper contains 1 question on 3 pages without the cover page.
- Create a folder in the **Home** directory with your **IT number**.
- Save the program you write inside the folder.
- Read the question before answering.
- The total marks obtainable for this examination is 50.

Question One

(50 marks)

The "SUPER GOODS" Pvt. Ltd. manufactures spices for the export market. There are two machines, A and B in the factory. A sample production of each machine for 7 days is shown in the following table 1 and 2 respectively. The production ranges between 100 and 200 per day.

Table 1-Machine A Production

Day	1	2	3	4	5	6	7
Array *index*	0	1	2	3	4	5	6
Production	160	180	150	110	190	140	165

Table 2-Machine B Production

Day	1	2	3	4	5	6	7
Array *index*	0	1	2	3	4	5	6
Production	180	100	115	170	155	165	195

(a) Write a function using C statements called *InputProduction*() which takes an integer *array* and the *size of the array* as parameters. The method should ask the user to insert production of each day and fill the array. The values are entered through the keyboard. (5 marks)

(b) Write a function using C statements called *MinimumProduction*() which takes an integer *array* and the *size of the array* as parameters. The method should find and return the lowest production in the array. (5 marks)

(c) Write a function using C statements called *MaximumProduction*() which takes an integer *array* and the *size of the array* as parameters. The method should to find and return the highest production in the array. (5 marks)

(d) Write a function using C statements called *AverageProduction*() which will take two integer arrays *(array1, array2),* one float array *(array3) and* the *size of the array1* as parameters. The method should find and store the average of array1 production and array2 production in array3 for 7 days. (5 marks)

(e) Write a function using C statements called *PrintProduction*() which will take an integer *array and* the *size of the array* as parameters. The method prints one asterisk ('*') for 10 products. (15 marks)
(Note: the machine production is rounded off to the nearest 10)

Example 1: if the production of machine is 15. It should have rounded off to 20 and then print 2 asterisks.
Example 2: if the production of machine is 14. It should have rounded off to 10 and then print 1 asterisk.
Example 3: if the production of machine is 16. It should have rounded off to 20 and then print 2 asterisks.

(f) Write a function using C statements called *DisplayDay*() to print the day of a particular production. The function should take the integer *array,* the *size of the array* and *the production* as parameters. The parameter *production* indicates the value to be searched in the array. (5 marks)

Note: use a switch statement

(h) Implement the main method of a C program to do the followings:

i. Create integer arrays with the names machine_A, machine_B and machine_Total. The arrays are of size 7. (1 mark)

ii. Insert machine A production details to the machine_A array using the function *inputProduction*(). (1 mark)

iii. Input machine B production details to the machine_B array using the function *inputProduction*(). (1 mark)

iv. Find and print the day number which has the highest production of machine A using the function *MaximumProduction*() and *DisplayDay*(). (1 mark)

v. Find and print the day number which has the highest production of machine B using the function *MaximumProduction*() and *DisplayDay*(). (1 mark)

vi. Find and print the day number which has the lowest production of machine A using the function *MinimumProduction*() and *DisplayDay*(). (1 mark)

vii. Find and print the day number which has the lowest production of machine B using the function *MinimumProduction*() and *DisplayDay*(). (1 mark)

viii. Find and print the average production of both machine A and B using the function *AverageProduction*(). (1 mark)

ix. Print the production of machine A using the function *PrintProduction*(). (1 mark)

x. Print the production of machine B using the function *PrintProduction*() (1 mark)

----------End of the question paper----------