

Name (Arabic): _____

Class: _____

Ain Shams University
Faculty of Computer and Information Sciences



Version 1 (8 am-8:45am)

Date: March 21st, 2018

First Year – Sections17:22 – Midterm Exam

Time: 45 minutes

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Course: CSW150

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Fundamental of Structured Programming Using C++

Please attempt ALL questions, and **think before you write.**

QUESTION (1) True/False. An explanation is required for false answers.	(3 points)	5-mints	Grade
(a) The statement <code>char cArr[7];</code> allocates seven bytes in memory.		(T)	1
Answer: (NO EXPLANATION REQUIRED)			
(b) It is the compiler's task to convert your source code into object code.		(T)	1
Answer: (NO EXPLANATION REQUIRED)			
(c) If x and y are variables declared of the same struct, then x=y leads to copying all values of y data members into x data members.		(T)	1
Answer: (NO EXPLANATION REQUIRED)			
QUESTION (2) Code Design	(2 points)	10-mints	
What is the output from the following Pseudocode fragment?			
<pre> do swapped = false for i = 1 to indexOfLastUnsortedElement-1 if leftElement > rightElement swap(leftElement, rightElement) swapped = true </pre>		<p>Input: 4 2 1 5 7 9</p> <p>Output:</p> <p>1 2 4 5 7 9</p> <p>Accepted also (due to starting from index 1)</p> <p>2 1 4 5 7 9</p>	2 (1 for partial sorting)

QUESTION (3) Code Development	(5 points)	20-mints	
<p>Write a program that <i>computes the occurrence of a specific number</i> by asking the user to type 10 integers (2 rows x 5 elements) saving them in a 2D array, and then ask him to input a specific number to find how many times this number is repeated. Your Program should ask the user if he wants to repeat the process until the user types sentinel value 'n'.</p>			
<p>Sample Run:</p> <pre> C:\Windows\system32\cmd.exe enter 10 elements: 1 2 3 4 5 5 7 2 1 2 Enter key:2 2 found 3 times Do you want to continue?(y/n)y enter 10 elements: 5 8 9 7 5 3 1 2 7 6 Enter key:4 4 Not found Do you want to continue?(y/n)n Press any key to continue . . . _ </pre>			
<p>Answer:</p> <p>Main source file</p> <pre> #include <iostream> using namespace std; void main() { const int row=2, col=5; int occ=0, key; int myArr[row][col]; char choice; do { occ=0; cout<<"enter 10 elements:\n"; for(int i=0;i<row;i++) for(int j=0;j<col;j++) cin>>myArr[i][j]; cout<<"Enter key:"; cin>>key; for(int i=0;i<row;i++) { for(int j=0;j<col;j++) { if(key==myArr[i][j]) occ++; } } if (occ>0) cout<<key<<" found " <<occ <<" times\n"; else cout<<key<<" Not found"<<endl; cout<<"Do you want to continue?(y/n)"; cin>>choice; }while(choice!='n'); } </pre>	<ul style="list-style-type: none"> • Program outline (#,main..etc) →(0.5) • User Friendly output msgs (at least one)→ (0.5) • Variable declaration + professional names → (0.5) • Sentinel value loop →(1) • Input array + key →(0.5) • Search(loop + if) →(1) • Counter→(0.5) • Output (2 cases) →(0.5) 		5

Best Wishes ☺

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