**جامعة القاهرة**

**معهد الدراسات و البحوث الاحصائية**

**امتحان دورة قبول C++ ( 1 )**

اسم الطالب: .......................................... رقم الطالب:.................

المطلوب الاجابة في نفس ورقة الامتحان الزمن ساعتان

الجدول التالي يملأ بعرفة المصحح

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| السؤال | الدرجة | التوقيع |
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| المجموع |  |  |

Question 1: (20 points)

Draw a flowchart and write a C++ program for an algorithm that accepts a number and display its factorial ;( factorial(x)= x\*(x-1)\*(x-2)\* …… \* 2\*1 )

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| --- | --- |
| **Flowchart** | **C++ Program Code** |
|  | ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ………………………………………………………………..  ……………………………………………………………….. |

Question 2: (15 points)

Correct the error(s) in each of the code segments below:

1. char[10] y;

cin<<y;

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1. cout<< "One plus two is " 1+2;

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1. if(x=4);

cout << x;

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

1. if(m=7 and 5)

cout<<m;

……………………………………………………………………………………………………

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……………………………………………………………………………………………………

1. //this code is supposed to compute 10!

int n=10;

int factorial=1;

while( n>= 1 ) {

factorial = factorial \*N;

N--;

Cout<< " 10! Is "<<factorial<<"\n";

}

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Question 3: (10 points)

**Rewrite the following do loops as a for loops. What does it print out?**

int x;

cin>>x;

do

{

do{

cout<< x<< " ";

}while(++x<10);

cout<<endl;

}while(++x<=30);

……………………………………………………………………………………………………

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Question 4: (12 points)

**Determine whether the following statements are true or false. If the statement is true, write (T) between the parentheses, else if it is false, write(F):**

1. The statement following else in an if-else construction are executed when the conditional expression following if is True . ( )
2. Statement of do/while loop in C++ is executed zero or more times .( )
3. The break statement in C++ is used to go to the beginning of the control structure . ( )
4. Tow variables can be declared in one statement in C++ program . ( )
5. The initialize expression and increment expression are contained in the loop expression of a for loop . ( )
6. An array can store many different types of values.( )

Question 5: (14 points)

What does the following program segments print?

|  |  |  |
| --- | --- | --- |
| A | int j =10;  Cout<<j\*++j\*j; | ……..……………..…………………………………… |
| B | int x =1; y=2;  x++;  x+=2;  x%=3;  y\*=2;  y/=2;  if( (y<x)||(x>=3)  cout<<y;  else  cout<<x; | ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..…………………………………… |
| C | cout<<(!(15%5) && !(9%6)); | ……..……………..…………………………………… |
| D | int sum=0;  int i=4;  do{  sum+=i;  i=i+2;  }while(i>=20);  cout << sum <<endl; | ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..…………………………………… |
| E | int i= 18;  while(i%8 !=0 || i%6 !=0 )  i++;  cout<< i <<endl; | ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..…………………………………… |
| F | int s=7;  do{  cout<<s<<endl;  break;  s++;  }while(s<10); | ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..…………………………………… |
| G | int y=0;  int x=6;  do{  y+=x;  }while(x++<10);  cout<<y; | ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..……………………………………  ……..……………..…………………………………… |

Question 6 (14 points)

**Write a program that creates the following pattern:**

1 2 3 4 5

1 2 3 4

1 2 3

1 2

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

Question 7: (15 points)

**Write a program that accepts 10 numbers then prints it in a reverse order i.e. the last element will be printed at the first and the first number will be printed at last and finally prints the average of the even numbers.**

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With my best wishes Good luck