

Final Test

A. Fill in the blanks in each of Match: For each term, write the corresponding letter for the description that best matches it from below. (20%)

- | | |
|---------------------------------|---------------------|
| 1. _____ Divide-and-conquer | 2. _____ continue |
| 3. _____ Function call | 4. _____ double |
| 5. _____ for | 6. _____ setw |
| 7. _____ default case | 8. _____ && |
| 9. _____ Sticky settings | 10. _____ break |
| 11. _____ Header file | 12. _____ Sequence |
| 13. _____ | 14. _____ += |
| 15. _____ Repetition | 16. _____ ++ |
| 17. _____ static_cast< double > | 18. _____ Selection |
| 19. _____ Sentinel | 20. _____ ?: |

- Control structure that allows programmers to specify an action to be repeated while some condition is true.
- Control structure that causes statements to execute in the order in which they appear.
- Causes immediate exit from a repetition statement.
- Contains function prototypes and definitions of various data types.
- Invokes a function.
- Skips to the next iteration in a repetition statement.
- An optional part of a switch statement.
- Logical OR.
- Specifies the field width in which the next value output should appear.
- Addition assignment operator.
- Can be used to create a temporary floating-point copy of its operand.
- Control structure that is used to choose among alternative courses of action.
- Technique for constructing a program from smaller, more manageable pieces.
- Format settings that stay in effect until they are changed.
- A convenient control statement for performing counter-controlled repetition.
- Increment operator.
- Special value which indicates the end of data entry.
- Logical AND.
- Conditional operator.
- A data type for storing floating-point values.

B. Write a C++ statement or a set of C++ statements to accomplish each of the following: (20%)

- Sum the **even** integers between 0 and 100 using a **while** statement. Please declare the integer variables **sum** and **count** for the statement.
- Calculate the value of 8^3 . Print the result with a precision of 2 in a field width of 10 positions.
- Output Boolean constant **true** if variable **count** is greater than 10 else output **false**. Use **conditional operator** and **stream manipulator** to finish the statement.
- Using the **switch statement** to test on an integers variable **counter** and print out "An even integer." or "An odd integer." when it contains an even integer or an odd one respectively.

C. implement the program by using **for**, **while** and **do/while** control structures. (20%)
Please input an integer **n** and throw three dies for **n** times. Remember to use seed for random number generator.

D. Please write out the whole **detail output** for the following program. (20%)

```
#include <iostream>
using namespace std;
void useLocal(); // function prototype
void useStaticLocal(); // function prototype
void useGlobal(); // function prototype

int x = 1;
int main()
{
    cout << "global x in main is " << x << endl;
    int x = 5;
    cout << "local x in main's outer scope is " << x << endl;
    {
        int x = 7;
        cout << "local x in main's inner scope is " << x << endl;
    }
    cout << "local x in main's outer scope is " << x << endl;
    useLocal(); useSL(); useG();
    useLocal(); useSL(); useG();
    cout << "nlocal x in main is " << x << endl;
}

void useLocal()
{ int x = 25;
  cout << "nlocal x is " << x << " in useLocal" << endl;
  x++;
  cout << "local x is " << x << " on exiting useLocal" << endl;
}

void useSL()
{ static int x = 50;
  cout << "n x is " << x << " in useSL" << endl;
  x++;
  cout << " x is " << x << " on exiting useSL" << endl;
}

void useG()
{ cout << "n x is " << x << " on entering useG" << endl;
  x *= 10;
  cout << " x is " << x << " on exiting useG" << endl;
}
```

E. Write a function **integerPower(base, exponent)** that returns the value of $base^{exponent}$. For example, **integerPower(3, 4) = 3 * 3 * 3 * 3**. Assume that **exponent** is a positive, nonzero integer and that **base** is an integer. Do not use any math library functions. (20%)

Attention!!!: Final Exercise 5.28

Due day : 2019/01/20 midnight.

某同學牙齦發炎去看醫生，醫生說要動手術。
同學說：「以前沒做過手術，有點緊張。」
醫生說：「不用緊張，我也是第一次做手術。」
這時護士過來問：「麻藥是打嘴裡面還是嘴外面？」
醫生說：「打腿上吧，免得等會他跑了。」