⚠ This quiz has been regraded; your new score reflects 3 questions that were affected.

Midterm Test (Spring 2025)

- Due Mar 25 at 11:59pm
- Points 100
- Questions 38
- Available after Mar 25 at 5pm
- Time Limit 60 Minutes

Instructions

By taking this test you confirm you are in the classroom unless you have specific permission to take it remotely.

You are expected to take this quiz with no outside help, no internet resources. It is closed book, closed notes, closed Discord, etc. Once you start this quiz, keep your computer focused on this quiz. Do not open any other windows while taking the quiz.

Good Luck.

Attempt History

	Attempt	Time	Score	Regraded
LATEST	Attempt 1	19 minutes	78 out of 100	82 out of 100

Score for this quiz: 82 out of 100
Submitted Mar 25 at 5:22pm
This attempt took 19 minutes.

Question 1
3 / 3 pts
How do you create an array of 20 integers called nums in C++?

- integer nums[20];

Correct!

- int nums[20];
- nums[20] <int>
- int nums = new int[20];
- The correct answer is not listed

Question 2
2 / 2 pts

If I am in Linux, how can I determine which directory I am currently in?

- where
- show
- cd

Correct!

- pwd

Question 3

3 / 3 pts

When building a class in C++, it is good practice to make the data members public so that other classes can quickly access them. This is what makes C++ a fast language.

- True

Correct!

- False

Question 4

3 / 3 pts

This program will compile and run just fine:

```
#include <iostream>
using namespace std;

int main()
{
     std::cout << "Hello World" << endl;
     return 0;
}
```

Correct!

- True
- False

Question 5

3 / 3 pts

What is the linux command to show the contents of a file?

- show

Correct!

- more
- see

There are 2 correct answers listed

Question 6

3 / 3 pts

Suppose there is a class called Card which is a playing card and suppose I have a vector of cards called deck. Consider the following code segment:

```
vector<Card> deck;    // create a vector of cards

Card c1('A','S');    // create a card

?????   // add the card to the deck
```

What is the statement that will add the card to the deck?

deck = c1;

deck.put(c1);

deck.add(c1);

Correct!

deck.push_back(c1);

Question 7

0 / 3 pts

Consider the following segment of code in C++:

```
int nums[10] = {1,2,3,4,5,6,7};
printArray(nums);
```

Also consider the this function:

```
void printArray(int n[ ])
{
     for(int i=0; i < n.size(); i++)
     cout << n[i];
}
```

How many numbers will the printArray( ) function actually print out?

You Answered

10

Correct Answer

the correct answer is not listed

7

1

Question

3 / 3 pts

//Consider the following program. how many numbers are printed to the output screen?

```
#include <iostream>
#include <vector>
using namespace std;

int main()
{
  vector<int> v;
  for (int i=0; i<10; i++)
        v.push_back(i);

  while (v.size() > 0)
        cout << v.front()<<endl;
  return 0;
}
```

- 0
- it will not compile
- 10

Correct!

- more than 10

Question 9

3 / 3 pts

Consider this code segment:

```
int nums[10]= {10,20,30};
int *p = &nums[0];
*(p+1) = 100;
cout << nums[0] + nums[1] + nums[2];
```

What will be the output to the screen?

- the address of nums
- a number less than 100
- The output is unpredictable

Correct!

- A number greater than 100

Question 10

2 / 2 pts

Using lin mands, how would I find out more about the wc command?

- help wc

- more wc

Correct!

- man wc
- list wc

Question 11

2 / 2 pts

Consider the following code segment:

```
int nums[10] = {7, 8, 9};

cout << sizeof(nums);
```

What is printed on the output screen?

- 10
- 24
- 3

Correct!

- 40

Question 12

3 / 3 pts

What is printed to the screen when this program is run:

```
#include <iostream>
using namespace std;

void toss( )
{
    cout << 1;
    throw 42;
}
int main()
{
    try { toss(); }
    catch ( int )
        { cout << 2; }

    cou 3;
```

```
    return 0;
}
```

Correct!

- 123
- 12
- 42
- 23

Question 13

3 / 3 pts

What is printed to the screen when this program is run:

```
#include <iostream>
using namespace std;

void toss( )
{
    throw 42;
    cout << 1;
}

int main()
{
    try
       { toss(); }
    catch (...)
       { cout << 2; }

    cout << 3;
    return 0;
}
```

- 123

Correct!

- 23
- 13
- 12

Question

3 / 3 pts

Suppose I have a file numbers.dat with the numbers 1 through 100 sorted, one number per line. What will be printed on the screen if I type this command sequence:

$ more numbers.dat | head -15 | tail -5 | head -1

- 15
- none of these answers is correct
- 1

Correct!

- 11

Question 15
0 / 3 pts

Consider the following code segment in C++::

```
int a = 5;
int b = 10;
int *ptr = &a;
*ptr = b;
cout << a;
```

What will be printed on the screen

- the address of b

You Answered

- the address of a
- 5

Correct Answer

- 10

Question 16
3 / 3 pts

Consider this complete program

```
#include <iostream>
using na ce std;
```

```
int mystery(int a, int & b)
{
    a += 10;
    b += 5;
    return a + b;
}


int main()
{
  int x = 10;
  int y = 20;
  int z = mystery(x, y);
  cout << x << "/" <<  y;
}
```

What prints to the screen?

Correct!

- 10/25
- 30/40
- 15/25
- 35/40

Question 17

Original Score: 3 / 3 pts Regraded Score: 3 / 3 pts

This question has been regraded.

What is wrong with the following C++ program:

```
#include <iostream>
using namespace std;

int main()
{
    int x=3, y=5 ;              // line 1
    int * ptr = x;              // line 2
    int    r2 = &y ;            // line 3
    y =                         // line 4
```

```
    ptr = & x;                  // line 5
    cout << x << y << *ptr;

    return 0;
}
```

Correct!

- Line 2 is wrong
- line 3 is wrong
- line 5 is wrong
- nothing is wrong

Question 18

3 / 3 pts

What is wrong with the following C++ program:

```
#include <iostream>
using namespace std;

int main()
{
    int x, y=5 ;                // line 1
    int * ptr;                  // line 2
    int *ptr2 = &y ;            // line 3
    int & z;                    // line 4
    ptr = & x;                  // line 5
    cout << x << y << *ptr;

    return 0;
}
```

- Line 3 is wrong

Correct!

- line 4 is wrong
- Line 2 is wrong
- line 1 is wrong

Question 19

3 / 3 pts

Consider the following segment of code in C++:

```
int nums[] = {1,2,3,4,5,6,7,8,9,10};
```

```
printArray(nums, 5);
```

Also consider the this function:

```
void printArray(int *n, int x)
{
     for(int i=0; i < x; i++)
        cout << *(n+i)<< endl;
}
```

How many numbers will the printArray( ) function actually print out?

Correct!

- (•) 5
- ( ) The correct answer is not listed
- ( ) 0
- ( ) all the numbers in the array

Question 20

3 / 3 pts

Suppose I run the bubble sort function on 10,000 numbers and it takes 1 second.

About how long will it take the same function to sort 30,000 numbers?

Correct!

- (•) 9 seconds
- ( ) 12 seconds
- ( ) 3 seconds
- ( ) 6 seconds

Question 21

2 / 2 pts

What is the expected growth rate of the bubble sort algorithm?

- ( ) O (n!)

Correct!

- (•) O (n*n)
- ( ) O (n * log(n))
- ( ) O (n)

Question 22

2 / 2 pts

Suppos e this at the Linux prompt:

$ ls -l numbers.dat

Here is the result of the above command:

-rw-r--r-- 1 steve steve 5000 Mar 8 02:19 numbers.dat

Which of the following is true?

Correct!

- The are 5000 bytes in numbers.dat
- There are 5000 numbers in numbers.dat
- The largest number is 5000 in numbers.dat
- The are 5000 bits in numbers.dat

Question 23

2 / 2 pts

What can be understood from the following Linux command and result:

$ time sort numbers.dat > sorted.out &

```
real    0m1.593s
user    0m5.128s
sys     0m0.184s
```

- The command took about 6.9 seconds to run (1.6 + 5.1 + 0.2)

Correct!

- The command took about 1.6 seconds to run
- The command took about 0.2 seconds to run
- The command took about 5.1 seconds to run

Question 24

3 / 3 pts

What is printed to the screen when this program is run:

```
#include <iostream>
using namespace std;

void toss( )
{
    throw "42";
    cout << 1;
}
int mai
{
```

```
    try { toss(); }
    catch ( int x) { cout << 2; }

    cout << 3;
    return 0;
}
```

- 23
- 123
- 42

Correct!

- The correct answer is not listed

Question 25
3 / 3 pts

What is printed to the screen when this program is run:

```
#include <iostream>
using namespace std;

void toss( )
{
    throw 42;
    cout << 1;
}
int main()
{
    try { toss(); }
    catch (...)
            { cout << 2; }

    cout << 3;
    return 0;
}
```

- 123
- 12
- the correct answer is not listed

Correct!

- 23

Question 26

3 / 3 pts

What is the output of the following program:

```
#include <iostream>
using namespace std;

void swap(int &x, int y)
{
    int temp = x;
    x = y;
    y = temp;
}
int main()
{
    int a = 10, b = 20;
    swap (a, b);
    cout << a << "/" << b<< endl;
    return 0;
}
```

Correct!

- 20/20
- 10/10
- 20/10
- 10/20

Question 27

3 / 3 pts

This program will successfully run. What will the output be?

```
#include <iostream>
using namespace std;

void scope( int x, int &y)
{
    int z = y;
    x =
    y =
```

```
    z = x + y;

}

int main()
{
    int a = 5;
    scope ( a, a);
    cout << a << endl;
    return 0;
}
```

- 5
- 25
- 10

Correct!

- 15

Question 28
3 / 3 pts

The following program will compile and run without errors. What is the output of the following program?

```
#include <iostream>

int mystery(int a, int b, int c, int *d)
{
    *d = a + b + c;
    return *d / 2;
}

int main()
{
    int z = 0;
    int *ptr = &z;
    mystery(1,2,3,ptr);
    std::cout << z;

    return 0;
}
```

- 1

Correct!

- 6
- 3
- 0

Question 29

0 / 3 pts

Consider the following code. Where does the variable on line 1 live?

```
#include <iostream>
using namespace std;

void scope( int x, int &y)
{
    int z = y;
    int n1[5] = {1,2,3,4,5};
    int *ptr = new int[5];
    cout << x << endl;          // line 1
    cout << z << endl;          // line 2
    cout << ptr << endl;        // line 3
    cout << n1[3] << endl;      // line 4
    cout << ptr[3] << endl;;    // line 5
}

int main()
{
    int a = 5;
    scope ( a, a);
    return 0;
}
```

Correct Answer

- on the stack
- on the side

You Answered

- on the heap
- on the moon

Question 30

2 / 2 pts

Consider the following code. Where does the variable on line 2 live?

```
#include <iostream>
using namespace std;

void scope( int x, int &y)
{
    int z = y;
    int n1[5] = {1,2,3,4,5};
    int *ptr = new int[5];
    cout << x << endl;          // line 1
    cout << z << endl;          // line 2
    cout << ptr << endl;        // line 3
    cout << n1[3] << endl;      // line 4
    cout << ptr[3] << endl;;    // line 5
}

int main()
{
    int a = 5;
    scope ( a, a);
    return 0;
}
```

Correct!

- (•) on the stack
- ( ) on the heap
- ( ) on the cloud
- ( ) on the corner

Question 31

0 / 2 pts

Consider the following code. Where does the variable on line 3 live?

```
#include <iostream>
using namespace std;

void scope( int x, int &y)
{
    int z = y;
    int n1[5] = {1,2,3,4,5};
    int *ptr = new int[5];
    cout << x << endl;          // line 1
```

```
    cout << z << endl;          // line 2
    cout << ptr << endl;        // line 3
    cout << n1[3] << endl;      // line 4
    cout << ptr[3] << endl;;    // line 5
}

int main()
{
    int a = 5;
    scope ( a, a);
    return 0;
}
```

- on the mark

Correct Answer

- on the stack

You Answered

- on the heap
- on the spot

Question 32

0 / 2 pts

Consider the following code. Where does the variable on line 4 live?

```
#include <iostream>
using namespace std;

void scope( int x, int &y)
{
    int z = y;
    int n1[5] = {1,2,3,4,5};
    int *ptr = new int[5];
    cout << x << endl;          // line 1
    cout << z << endl;          // line 2
    cout << ptr << endl;        // line 3
    cout << n1[3] << endl;      // line 4
    cout << ptr[3] << endl;;    // line 5
}

int ma
{
```

```
    int a = 5;
    scope ( a, a);
    return 0;
}
```

You Answered

- on the heap
- on the point
- on the run

Correct Answer

- on the stack

Question 33

2 / 2 pts

Consider the following code. Where does the variable on line 5 live?

```
#include <iostream>
using namespace std;

void scope( int x, int &y)
{
    int z = y;
    int n1[5] = {1,2,3,4,5};
    int *ptr = new int[5];
    cout << x << endl;          // line 1
    cout << z << endl;          // line 2
    cout << ptr << endl;        // line 3
    cout << n1[3] << endl;      // line 4
    cout << ptr[3] << endl;;    // line 5
}

int main()
{
    int a = 5;
    scope ( a, a);
    return 0;
}
```

- on the loose

Correct!

- on the heap

- on the floor
- on the stack

Question 34

0 / 3 pts

// Consider the following C++ program. What is the output?

```
#include <iostream>

void mystery(int x, int &y, int *z)
{
    x = 30;
    y = 30;
    *z = 30;
}


int main()
{
    int a = 5;
    int b = 10;
    int c = 20;
    int *ptr = &c;
    mystery(a,b,ptr);
    std::cout << a << '/' << b << '/' << c << std::endl;

    return 0;
}
```

- The correct answer is not listed
- 5/10/20

You Answered

- 30/30/30

Correct Answer

- 5/30/30

Question 35

Original Score: 0 / 2 pts Regraded Score: 2 / 2 pts

This question has been regraded.

// What is the output of the following program:

```
#include <iostream>
#include <cstring>
using namespace std;

int main()
{
    char a[10] = {'a','b','c'};
    char b[5] = "abc";

    if (strlen(a) == strlen(b))
        cout << "happy";
    else
        cout << "sad";


  return 0;
}
```

You Answered

- (•) sad

Correct Answer

- ( ) happy
- ( ) The correct answer is not listed

Question 36

2 / 2 pts

// What is the output of the following program:

```
#include <iostream>
#include <cstring>
using namespace std;

int main()
{
    char a[] = {'a','b','c'};
    char b[] = "abc";

    if (strlen(b) == sizeof(b))
        cout << "happy";
    else
        cout << "sad";
```

```
  return 0;
}
```

Correct!

- sad
- happy
- The correct answer is not listed

Question 37

0 / 2 pts

// What is the output of the following program:

```
#include <iostream>
#include <cstring>
using namespace std;

int main()
{
    char a[] = {'a','b','c'};
    char b[] = "abc";

    if (sizeof(a) == sizeof(b))
        cout << "happy";
    else
        cout << "sad";


  return 0;
}
```

- The correct answer is not listed

Correct Answer

- sad

You Answered

- happy

Question 38

Original Score: 0 / 2 pts Regraded Score: 2 / 2 pts

This question has been regraded.

// What is the output of the following program:

```
#include <iostream>
#include <cstring>
using namespace std;

int main()
{
    char a[] = {'a','b','c'};
    char b[] = "abc";

    if (strlen(a) == strlen(b))
        cout << "happy";
    else
        cout << "sad";

  return 0;
}
```

Correct Answer

- sad

You Answered

- happy
- The correct answer is not listed

Quiz Score: 82 out of 100