CSCI 13500 midterm f21 v2 (yellow)

TOTAL POINTS **94 / 100**

QUESTION 1 30 pts

1.1 3/3

√ - 0 pts Correct

- 3 pts wrong answer

1.2 3/3

√ - 0 pts Correct

- 3 pts Incorrect

1.3 0/3

- 0 pts Correct

√ - 3 pts Incorrect

1.4 3/3

√ - 0 pts Correct

- 3 pts Incorrect

1.5 3/3

√ - 0 pts Correct

- 3 pts Incorrect

1.6 3/3

√ - 0 pts Correct

- 3 pts Incorrect

1.7 3/3

√ - 0 pts Correct

- 3 pts Incorrect

1.8 3/3

√ - 0 pts Correct

- 3 pts Incorrect

1.9 3/3

√ - 0 pts Correct

- 3 pts Click here to replace this description.

1.10 3/3

√ - 0 pts Correct

- 3 pts Incorrect

Don't forget to declare an int!

QUESTION 2

30 pts

2.1 10 / 10

√ + 10 pts Correct

+ 5 pts Partly

+ 2 pts Incorrect

+ 0 pts Blank

2.2 10 / 10

 $\sqrt{+2.5}$ pts a = 3

 $\sqrt{+2.5}$ pts b = 6

 $\sqrt{+2.5}$ pts c = 2

 $\sqrt{+2.5}$ pts d = 8

+ 1 pts Incorrect

+ 0 pts Blank

2.3 10 / 10

√ - 0 pts Correct

- 3 pts foo(8) is not a number, it is string "10"

- 3 pts foo(17) is not a number, it is string "21".

- 2 pts no intermediate step and results is wrong.

- 2 pts foo(8) is not the string in your paper.

- 2 pts foo(17) is not the string in your paper.

- 1 pts calculation is not correct.

- 9 pts no actual output

- 3 pts You reverse the string.

- 3 pts to_string(2) is "2". You need to know

concatenation of string.

- **0.5 pts** foo(17) is a string, which should be included in "".
 - 1 pts output is string and should be included in "".

QUESTION 3

3 20 / 20

√ + 20 pts Correct

- + 5 pts correct function declaration
- + 5 pts correct for loop or for if
- + **5 pts** string build up (e.g. ans_str += str[i] or ans_str = ans_str + str[i])
 - + 5 pts correct return
 - + 2 pts Write something

QUESTION 4

4 17 / 20

- 0 pts Correct
- \checkmark 1 pts When a is 0, if b is also 0, x can be any value, but if a is 0 but b is not 0, then there is no solution.
 - **0.5 pts** Expression b x b should be b * b.
 - **0.5 pts** Type of x is double, not int.
- -1 pts a = 0 b = 0 is not a valid condition. You mean (a == 0 && b == 0)?
- 1 pts Need to use curly parentheses to enclose statements in if- or else- part if there is more than one statement in those parts.
 - 1 pts Need to print out result.
 - **0.5** pts a is not initialized.
 - 1 pts x is not declared.
- 1 pts output x as -(b*b)/a is when a is not 0. That is, you need to enclose this statement in else part of if (a == 0).
- \checkmark 0.5 pts Should not use . to replace multiplication operator *
- 1 pts solution when a is not zero is not correct. It should be -(b*b/a);
- $\sqrt{-1.5}$ pts You change problem. We did not require that a cannot be zero.
 - 1 pts print result, not return its value in main

function, which can only return an int.

- **0.5 pts** a and b are double, not int. The result is a double type.
- **0.5 pts** int a; b; x; should not use; You either use double a; double b; double x; OR you can use double a, b, x;
 - 1 pts condition (a = 0) should be (a == 0)
 - 2 pts initialize a and b.
 - **0.5 pts** x is -(b*b) / a;
 - 2 pts Do not solve x correctly when a is not zero.
 - 1 pts x is not entered, it is calculated from a and b.
 - 4 pts calculation is not correct.
- 1 pts Why use for (int i = 0; i <= 0; i++) return [i]; [i] is not correct in syntax.
- **0.5 pts** no declaration of formula
- **0 pts** break; normally only works in repetition statement and switch statement.
 - 1 pts x calculation is not correct
- **1 pts** Formula to calculate for x does not fit for C++ syntax.
- **0.5 pts** x is only calculated when a is not zero, so print its value only in the else-part. You cannot put it outside the if-else statement.
- **0.5 pts** result should be -b*b / a; or -pow(b, 2)/ a; You miss negative sign.
- **0.5 pts** cannot put = between type and variable names. So int = a, b, x; is wrong.
- **0.5 pts** There is no else if in C++. You either use else if (condition) or else.
- **0.5 pts** A statement needs to be ended by semicolon;
- **0.5 pts** pow(-1*b, 2) or pow(-b, 2) is the same as pow(b, 2). The answer for x is -pow(b, 2) / a; Negative sign should be out of pow function.
 - O pts main function header should be int main()
 - 20 pts no submission
- **0 pts** Need to enter values from console. Do not initialize them directly.
- **0.5 pts** Only need to enter values for a, b. No need to enter values for other variables.
- **5.5 pts** We are not solving for quadratic equation since there is no x^2 in the equation.

- -1 pts 2a should be 2 * a, and 2 * a should be enclosed in ().
 - **0.5 pts** 4(ac) should be 4 * a * c.
- O pts cout << "result2"; print out string result2. cout<< result2; print out the value of result2.
- 1 pts cannot have two unconditional return statements. For example, return x; followed by return 0; then the second return statement will not run.
- -1 pts x can only be calculated when a is not 0. So the calculation of x and print its result should be in else part of if (a == 0) statement.
 - 1 pts print x after calculate it.
 - **0.5 pts** b^2 is written as b * b
- 2 pts condition in while statement is wrong. In fact, we do not need repetition statement in this problem.
 - 9 pts calculation is not correct. Not close.
 - 1 pts No declaration and calculation of x.
- **0.5 pts** Calculation of x only happens when a is not zero. You either put the calculation and print x in else part of if (a == 0) or put a return statement in ifpart.
 - 1 pts No declaration of variable result.
- **3 pts** Need an if statement to handle the case when a is zero.
 - **0.5 pts** No input for b.
 - 0.5 pts num is not int, it is double type.
 - 0 pts Please write bigger font.
- **0.5 pts** calculate -b*b/a should be put inside the ifpart of if (a == 0), otherwise, exception divided by 0 will happen.
- 1 pts pow * equation = a x + b . b is not a valid statement.
 - 1 pts no declaration of missingvalue.
 - 1 pts Why do you need to use enum?
- 1 pts cin > "a"; should be cin >> a; cin >> "b" should be cin >> b;
- 1 pts If you define foo function, you need to how to call it in main function.
- 1 pts double(double x) and a*x + pow(b,2) = 0 cannot be compiled.
 - 9 pts calculation for x when a is not 0 is missing.
 - 1 pts cout "x = 0" is not correct. You mean cout <<

- "x = 0"; But the logic is not correct. When a is 0 and b is 0, variable x can be any value.
 - 0 pts int a, b; x; should be double a, b, x;
- 1 pts Need to put the calculation of x in the else part of if (a == 0).
- **0.5 pts** condition needs to be put in a pair of parentheses in C++
- **0.5 pts** result -= 0.0; does not change result since it is equivalent to result = result 0.0; you mean result = 0 result? Note that result = 0 result; cannot be simplified as result -= 0;
- 1 pts do-while loop can be taken out, since a can be zero
- 1 pts double ans = 0; should be outside if-else statement, otherwise, if double ans = 0; only in if-part, ans is not visible to else-part.
 - 1 pts a is not zero is written as (a != 0) or (!(a == 0)).
- 1 pts We did not exclude the case when a is 0. So you should not force the user enter a value that a is not zero.
- **0.5 pts** Between -1 and pow(b, 2), there should be multiplication operator *
 - **0.5 pts** No declaration of x
- 2 pts When a is 0, need to consider the case when b is zero or not.
- 2 pts logic is not correct. we only need to consider the case when a is zero and a is not zero.
- **0.5 pts** When a and b are both 0, x can be any number.
- 1 pts cin >> a; cin >> b; or cin >> a >> b;
- 1 pts float a == 0 is not a valid condition.
- 1 pts Misrepresent pow(b, 2) with sqrt(b)
- **0.5 pts** condition needs to be enclosed in a pair of parentheses
- 3 pts When a is zero, no actual processing.
- **0.5 pts** In main function, return an int, not just return:
- **1 pts** Need to put code to calculate and print x when x is not zero inside main function. Every piece code need to be put inside a function.
 - **0.5 pts** -pow(b, 2) % a should be -pow(b, 2) / a;
 - **5 pts** no code to handle a is zero.

- 1 pts no declaration of term2
- **0.5 pts** -b^2 is not valid in C++
- 2 pts In main function, cannot return a double or a boolean.
 - 1 pts Only calculate x when a is not zero.
 - 1 pts condition a > 0 should be a != 0
 - 1 pts pow(2, b) is not the same as pow(b, 2).
- **3 pts** function is not correct. Return type is double, not int, and you did not return anything when a is zero.
- **3 pts** Need to write code in main function to call function defined.
 - **0.5 pts** b^2 is b * b in C++
 - 0.5 pts need to write s / a in C++
- 1 pts do is not a complete statement, you means else?

- 1. (30 points) Answer the following questions.
 - (1) What is the value of 7/2 * r * r when variable r is 2 in C++? $7/2 = 3 \qquad 3 \cdot r \cdot r = 3 r^2 = 22$ $3 \cdot 2 \cdot 2 = 22$
 - (2) Declare function foo whose input parameter is a string and return is an int. You just need to write the function header, no implementation is needed.

int foo(string P);

(3) Write code to generate a random int in [-100, 100].

(int) (mad) - 201) - 200 RAND_MAX

(4) Given array of strings as follows
 string greetings[] = {"Hello", "Morning", "Hi", "Great"};
 What is the value for greetings[3].length()?

5

(5) Suppose we generate a runnable file myprog, and we would like redirect the input from console to a file called input.txt. What is the command?

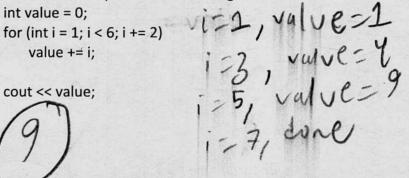
. /myprog _ input. txt

value= 0

(6) What is the output of the following code?

int value = 0; value += i;

cout << value:



(7) Write code to declare an array of int with size 60, call it scores. Initialize each element by 1.

int scores [60] = {3; for (int i=0; i260; itt) Scoresti]=1;

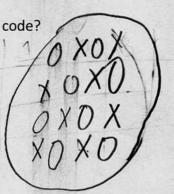
(8) What is the output of the following code?

for (int i = 0; i < 4; i++) for (int j = 0; j < 4; j++)

if (i % 2 != j % 2) cout << "X"; else cout << "O":

cout << endl;

}



(9) Write a condition to represent that both x and y are out of the range of [0, 100], where both ends are included. Suppose x and y are properly declared and initialized.

Suppose n is an int, write code to get its last digit. For example, suppose n is 21, (10)after your code, you get 1.

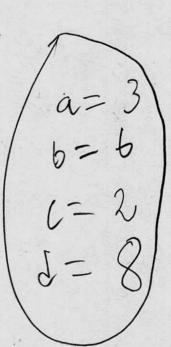
n/010

2. (30 points) Short answer questions

(2.1) Given three integers a, b and c, properly declared and initialized, write a code to find out the minimum number.

(2.2) Read codes and write output.

```
void foo(int& a, int& b);
int main()
  int a = 3;
  int b = 6;
  foo(a, b);
  cout << "a = " << a << endl;
  cout << "b = " << b << endl;
  int c = 8;
  int d = 2;
  foo(c, d);
  cout << "c = " << c << endl;
  cout << "d = " << d << endl;
  return 0;
}
void foo(int& a, int& b)
  int temp;
  if (a \% b == 0)
    temp = a;
    a = b;
    b = temp;
```



```
(2.3) Read code and answer questions.
```

```
string foo(int num)
 string result = "";
 do {
   result = to_string(num % 8) + result;
    //to string convert an int to the corresponding string
   num /= 8;
 } while (num != 0);
 return result;
```

What are the return for foo(8) and foo(17)?

What are the return for foo(8) and foo(17)?

$$resvlt=\frac{111}{1000}$$
 $resvlt=\frac{111}{1000}$
 $resvlt=\frac{101}{1000}$
 $resvlt=\frac{101}{10000}$
 $resvlt=\frac{101}{1000}$
 $resvlt=\frac{101}{1000}$

result= "11 num=17 result=12", run=2 result= '711', num=0 3. (20 points) Define a function, for a given string str, return a string whose letters are the

"b" string foo (string str)

String (str)

String (

- 4. (20 points) Write code inside main function, no need to include libraries.
 - (1) Enter numbers a and b, which can contain decimals.
 - (2) Solve x for $ax + b^2 = 0$. You need to consider the case when a is zero or not.

int main! double a, b; please enter a"; continue (a ==0) while (a ==0) (continue re-enter a"; doubledouble & F b. bland 12/2/21/ Mont 04 × Clend!

return 0;