

CISC 105 sections 010-021 (Conrad) Midterm October 13, 2003

Name _____

Circle one:

Freshman Sophomore Junior Senior Other

Please circle your section number (refer to table below if you are not sure):

010 011 012 013

014 015 016 017

018 019 020 021

018,019,020,021 LEC MWF 10:10AM-11:00AM SMI 209 CONRAD P
018 LAB F 9:05AM-9:55AM PRS 114
019 LAB F 11:15AM-12:05PM PRS 114
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021 LAB F 1:25PM-2:15PM PRS 114

010,011,012,013 LEC MWF 11:15AM-12:05PM GOR 104 CONRAD P
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017 LAB F 3:35PM-4:25PM WHL 009

General Instructions

- DO NOT WRITE YOUR NAME ON ANY PAGE EXCEPT THIS ONE!
- You have 50 minutes
- **Pace Yourself!!!!**

Pay attention to the point values. When there are 10 minutes left, skim through and be sure you have at least written *something* for the questions that are worth many points.

- Read *all* the directions *carefully* on each problem.
- Good luck.

1. Short Answer

- (a) (2 pts) How many operands does a unary operator have
- (b) (2 pts) What type of C variable is used with the conversion specifier %f?
- (c) (2 pts) In the expression (b + 7), what is the *constant*?
- (d) (2 pts) In the expression (b + 7), what is the *variable*?
- (e) (2 pts) In the expression (b + 7), is the operator unary, binary or ternary?

2. Multiple Choice

- (a) (1 pts) Which of the following tests whether x is equal to 10?
(a) `if (x == 10)` (b) `if (x = 10)`
- (b) (1 pts) Which of the following assigns the value of 2 times y to x?
(a) `x == 2 * x;` (b) `2 * y = x;` (c) `x = 2 x y;` (d) `x = 2 * y;`
- (c) (1 pts) In the expression 100101×2^{10010} , which part is the mantissa?
(a) 100101 (b) \times (c) 2 (d) 10010
- (d) (1 pts) The C statement `x = x / 2;` is equivalent to which of the following statements?
(a) `x /= 2;` (b) `x += 2;` (c) `x = 2;` (d) `x = 2 / x ;`

3. Suppose you have a C program in a file named `lab03.c`
What Unix command do you enter to perform each of the following operations?
- (a) (1 pts) Enter a text editor to make changes to the program

 - (b) (1 pts) Display the contents of the source code on your screen.

 - (c) (1 pts) Compile the program

 - (d) (1 pts) Copy the program to a new file called `lab03b.c`.

4. (20 pts) To convert from fahrenheit to celsius, you subtract 32, divide by 9, then multiply by 5.

For example, consider 50 degrees Farenheit. Subtract 32, and you get 18. Divide by 9, and you get 2. Multiply by 5, and you get 10 degrees Celsius.

Write a complete C program that does all of the following steps. The program should be designed to be interactive; that is, to interact with a human user.

- Ask the user for a temperature in Farenheit.
- Calculate the equivalent temperature in Celsius.
- Print a message with the resulting temperature in Celsius.

Be sure your program contains appropriate comments and all necessary statements to be a complete C program, ready to compile.

Extra space in case you need it.

5. (30 pts) Write a complete C program that does all of the following steps. The program should be designed to be interactive; that is, to interact with a human user.

- Read a sequence of test scores, all integers between 0 and 100, terminated by the sentinel value -1.
- Print out the total number of test scores in the sequence, and the number of test scores that were below a passing grade, assuming that any value 60 or higher is passing.

Be sure your program contains appropriate comments and all necessary statements to be a complete C program, ready to compile.

Extra space in case you need it.

6. Number conversions:

(a) (4 pts) Convert 45 from decimal to binary

(b) (4 pts) Convert C1F7 from hexadecimal to binary

(c) (4 pts) Convert 4D from hexadecimal to decimal

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- Good luck.

1. Short Answer

- (a) (2 pts) How many operands does a binary operator have?
- (b) (2 pts) What type of C variable is used with the conversion specifier %f?
- (c) (2 pts) In the expression (a + 4), what is the *variable*?
- (d) (2 pts) In the expression (a + 4), what is the *operator*?
- (e) (2 pts) In the expression (a + 4), is the operator unary, binary or ternary?

2. Multiple Choice

- (a) (1 pts) Which of the following tests whether x is equal to 10?
(a) `if (x = 10)` (b) `if (x == 10)`
- (b) (1 pts) Which of the following assigns the value of 2 times y to x?
(a) `2 * y = x;` (b) `x == 2 * x;` (c) `x = 2 * y;` (d) `x = 2 x y;`
- (c) (1 pts) The expression 100101×2^{10010} illustrates the internal format of what kind of C data type?
(a) `int` (b) `float` (c) `short` (d) `exponent`
- (d) (1 pts) The C statement `x = x / 2;` is equivalent to which of the following statements?
(a) `x = 2;` (b) `x += 2;` (c) `x /= 2;` (d) `x = 2 / x ;`

3. Suppose you have a C program in a file named `myprog.c`
What Unix command do you enter to perform each of the following operations?

(a) (1 pts) Compile the program

(b) (1 pts) Enter a text editor to make changes to the program

(c) (1 pts) Create a new directory called `dataFiles`

(d) (1 pts) Copy the program to a new file called `myprog2.c`.

4. (20 pts) To convert from celsius to fahrenheit, you divide by 5, multiply by 9, then add 32. For example, consider 10 degrees C. Divide by 5, you get 2. Multiply by 9, you get 18. Add 32, and you get 50 degrees Fahrenheit.

Write a complete C program that does all of the following steps. The program should be designed to be interactive; that is, to interact with a human user.

- Ask the user for a temperature in Celsius
- Calculate the equivalent temperature in Fahrenheit.
- Print a message with the resulting temperature in Fahrenheit.

Be sure your program contains appropriate comments and all necessary statements to be a complete C program, ready to compile.

Extra space in case you need it.

5. (30 pts) Write a complete C program that does all of the following steps. The program should be designed to be interactive; that is, to interact with a human user.

- Read a sequence of test scores, all integers between 0 and 100, terminated by the sentinel value -1.
- Print out the total number of test scores in the sequence, and the number of test scores that were above a passing grade, assuming that any value 60 or higher is passing.

Be sure your program contains appropriate comments and all necessary statements to be a complete C program, ready to compile.

Extra space in case you need it.

6. Number conversions:

(a) (4 pts) Convert 51 from decimal to binary

(b) (4 pts) Convert E3B9 from hexadecimal to binary

(c) (4 pts) Convert 5B from hexadecimal to decimal

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1. Short Answer

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- (b) (2 pts) What type of C variable is used with the conversion specifier %d?
- (c) (2 pts) In the expression (b + 7), what is the *operator*?
- (d) (2 pts) In the expression (b + 7), what is the *variable*?
- (e) (2 pts) In the expression (b + 7), is the operator unary, binary or ternary?

2. Multiple Choice

- (a) (1 pts) Which of the following tests whether x is equal to 10?

(a) `if (x == 10)` (b) `if (x = 10)`

- (b) (1 pts) Which of the following assigns the value of 2 times y to x?

(a) `x == 2 * x;` (b) `2 * y = x;` (c) `x = 2 x y;` (d) `x = 2 * y;`

- (c) (1 pts) The expression 100101×2^{10010} illustrates the internal format of what kind of C data type?

(a) `short` (b) `int` (c) `exponent` (d) `float`

- (d) (1 pts) The C statement `x = x / 2;` is equivalent to which of the following statements?

(a) `x /= 2;` (b) `x += 2;` (c) `x = 2;` (d) `x = 2 / x ;`

3. Suppose you have a C program in a file named `lab02.c`
What Unix command do you enter to perform each of the following operations?
- (a) (1 pts) Create a new directory called `newFiles`

 - (b) (1 pts) Enter a text editor to make changes to the program

 - (c) (1 pts) Copy the program to a new file called `lab02b.c`.

 - (d) (1 pts) Rename the old `lab02.c` file to be called `lab02a.c`

4. (20 pts) To convert from fahrenheit to celsius, you subtract 32, divide by 9, then multiply by 5.

For example, consider 50 degrees Farenheit. Subtract 32, and you get 18. Divide by 9, and you get 2. Multiply by 5, and you get 10 degrees Celsius.

Write a complete C program that does all of the following steps. The program should be designed to be interactive; that is, to interact with a human user.

- Ask the user for a temperature in Farenheit.
- Calculate the equivalent temperature in Celsius.
- Print a message with the resulting temperature in Celsius.

Be sure your program contains appropriate comments and all necessary statements to be a complete C program, ready to compile.

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5. (30 pts) Write a complete C program that does all of the following steps. The program should be designed to be interactive; that is, to interact with a human user.

- Read a sequence of test scores, all integers between 0 and 100, terminated by the sentinel value -1.
- Print out the total number of test scores in the sequence, and the number of test scores that were below a passing grade, assuming that any value 60 or higher is passing.

Be sure your program contains appropriate comments and all necessary statements to be a complete C program, ready to compile.

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6. Number conversions:

(a) (4 pts) Convert 45 from decimal to binary

(b) (4 pts) Convert C1F7 from hexadecimal to binary

(c) (4 pts) Convert 3F from hexadecimal to decimal

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- (c) (1 pts) In the expression 100101×2^{10010} , which part is the mantissa?
(a) 100101 (b) \times (c) 2 (d) 10010
- (d) (1 pts) The C statement `x = x / 2;` is equivalent to which of the following statements?
(a) `x = 2;` (b) `x += 2;` (c) `x /= 2;` (d) `x = 2 / x ;`

3. Suppose you have a C program in a file named `myprog.c`
What Unix command do you enter to perform each of the following operations?
- (a) (1 pts) Compile the program

 - (b) (1 pts) Enter a text editor to make changes to the program

 - (c) (1 pts) Execute the program.

 - (d) (1 pts) Copy the program to a new file called `myprog3.c`.

 - (e) (1 pts) Rename the old `myprog.c` file to be called `h02.c`

4. (20 pts) To convert from celsius to fahrenheit, you divide by 5, multiply by 9, then add 32. For example, consider 10 degrees C. Divide by 5, you get 2. Multiply by 9, you get 18. Add 32, and you get 50 degrees Fahrenheit.

Write a complete C program that does all of the following steps. The program should be designed to be interactive; that is, to interact with a human user.

- Ask the user for a temperature in Celsius
- Calculate the equivalent temperature in Fahrenheit.
- Print a message with the resulting temperature in Fahrenheit.

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Be sure your program contains appropriate comments and all necessary statements to be a complete C program, ready to compile.

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6. Number conversions:

(a) (4 pts) Convert 57 from decimal to binary

(b) (4 pts) Convert A7F3 from hexadecimal to binary

(c) (4 pts) Convert 2E from hexadecimal to decimal

