Exam-2.2

Started: Jul 11 at 9pm

Quiz Instructions

Question 1

3 pts

You have the following code in your C program

char *x = “hello\n”;

char x1[] = “hello\n”;

Which segments are the values of x and x1 stored in memory, respectively?

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Question 2

3 pts

What is the reason that buffer is often defined as void* ?

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Question 3

3 pts

You defined two buffers in your code

buf1[8] = {‘a’,’a’,’a’,’a’,’a’,’a’,’a’,’a’};

buf2[4] = {‘b’,’b’,’b’,’b’}

Now, write a code to copy buf2 to buf1 and make buf1 as {‘a’,’a’,’b’,’b’,’b’,’b’,’a’,’a’} using memcpy function.

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Question 4 3 pts

Given an integer A=0x44113322, write its four bytes in the correct order in the memory according to the big endian system, assuming the memory address increases from the left to the right.

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Question 5 3 pts

What are file descriptors?

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Question 6 3 pts

Where is the main difference between the command next(n) and step(s) in gdb

Question 7

5 pts

Convert the decimal number 300 into hexadecimal, and then directly convert the hexadecimal representation into a binary representation. Show your work.

Question 8

5 pts

Assume that a file has the following access policy

rwxrw---x

Explain the above access policy for the file.

Question 9

5 pts

Given the decimal number 30, whose binary representation is (00011110), in an 8-bit system, what is the binary representation of -30 according to two's complement number system? Show your work.

Question 10

5 pts

Explain blocking I/O, Non-blocking I/O and Asynchronous I/O

Question 11

5 pts

One difference between static library and dynamic library is that, when you call a library function in your code, the function in your object code is resolved at ___ time and at ___ time, respectively. To build a static library and a dynamic library, you use the command with name _____and _____, respectively, and the resulting library has the file extension ____ and ____, respectively. (one word for each blank).

Question 12

7 pts

The following questions are all concerning Cache.

(a) Name the two types of cache locality and briefly explain the intuitions behind them (one sentence for each).

(b) If the cache adopts the LFU policy, what does it mean?

(c) Assume a memory access to main memory on a cache "miss" takes 100 ns and a memory access to the cache on a cache "hit" takes 5 ns. If 80% of the processor's memory requests result in a cache "hit", what is the average memory access time?