Take home midterm for CSC 2510 Spring 2018

Assigned March 22, in class. Due March 27, and end of class.
Individual effort required - no collaboration - imagine this was an in-class exam.
You can use any resource book or online source.
Turn in an assembly language source code file, ready to assemble, to eLearning.
NO `main`. NO output. NOT a full program. Just the functions.

Here is a generic signature for memcpy

```
void memcpy(unsigned char * d, unsigned char * s, unsigned long count);
```

Assume `d` and `s` are aligned on 16 byte boundaries.
Assume the memory regions do NOT overlap.
Assume AARCH64 - the instruction set we use.

1. Assume `count` is a multiple of 16.

   Write the fastest version you can whose instructions fit within 64 bytes. Code must include explanation of your approach in comments. Call the function `memcpy64`.

2. Now, assume `count` has **no** limitations.
   Write the fastest version you can whose instructions fit within 256 bytes. Code must include explanation of your approach in comments. Call the function memcpy256.

3. Describe how you *might* modify your code to take advantage of instruction and data caches. Don't write code - just include this answer and comments in your code.

I will grade by:
- Assembling your file on one of our machines.
- Eyeballing correctness. No actual test.
- Eyeballing speed. No actual test.

As an added bonus I will actually test and time the most promising `memcpy256`. I will buy the winner (fits in 256 bytes, is fastest and is correct) a $20 Amazon gift card.