

# CS2910 Paper Quiz 1

Name: \_\_\_\_\_

1. (2 points) Consider the hexadecimal number 960F.
  - a. Write this numbers as a binary number. (Note the hexadecimal table below.)
  - b. Fill in the bits of the big-endian ordering of this number. The memory indices of the byte are shown in the first row.

0	1

2. (3 points)
  - a. On what layer of the network protocol stack is routing done?
  - b. Why is multi-casting not performed on this layer of the stack in current networks?

Stack Level
Application
Transport
Network
Link
Physical

3. (2 points)
  - a. **Write and box** the number -3 in 4-bit 1's complement encoding (in binary representation). Show work for partial credit.
  - b. **Write and box** the number -3 in 4-bit 2's complement encoding (in binary representation).

4. (3 points) Consider the Unicode character with code-point U+672C (本). **Write and box** the hex representation of the UTF-8 encoding of this character. Show your work.

First code point	Last code point	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6
U+0000	U+007F	0xxxxxxx					
U+0080	U+07FF	110xxxxx	10xxxxxx				
U+0800	U+FFFF	1110xxxx	10xxxxxx	10xxxxxx			
U+10000	U+1FFFFF	11110xxx	10xxxxxx	10xxxxxx	10xxxxxx		

Binary	Hexadecimal
0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	A
1011	B
1100	C
1101	D
1110	E
1111	F