Exam 2 –Notes/Chapters 1-7, 11 & Patterson Text
Total Points: 30

Directions: Make sure all questions are clearly numbered and answered in one file to upload. Also, add your name to the top of the first exam page.

Short Answer. Show work for problems 1-6.

Note: Only half credit will be given for giving a correct answer without showing work. Wrong answers or no answers will lose the full two points. No partial credit for an attempt with wrong answers.

Fill in the Blank: Questions 7-10. No partial credit.

All provided segments/images are intended to be syntactically correct, unless otherwise stated (e.g., error is an answer). (20 pts @ 2pts each)

1. Multiply and express the answer in octal:

   $FF_{16} \times 10001_2$

2. Find the quotient and the remainder for the following division problem in base 2:

   $1101101011_2 \div 10101_2$

3. Show that:

   `XY + X'Z + YZ = XY + X'Z`

   - Using truth tables
   - Using Boolean algebra

4. What is the value (evaluate) of the postfix expression below:

   ```
   8 3 * 2 + 14 5 + -
   ```

5. Evaluate the expression:

```
((LCIRC-2(NOT(1101 AND 11001100))) XOR (RSHIFT-3(NOT(11100101))))
```

6. Assume a computer has 32-bit integers. Show how the value `0x0001122` would be stored sequentially in memory, starting at address `0x000`, on both a big-endian machine and a little-endian machine, if each address holds one byte.

Address	Big Endian	Little Endian
0x000		
0x001		
0x002		
0x003		

7. _____ law states the interrelationship of all components with the overall efficiency of a computer system with a simple formula.

8. Which level of Redundant Arrays of Inexpensive Disks (RAID) combines the striping of RAID-0 with the mirroring of RAID-1?

9. (Ch. 11) MIPS, in the context of computer performance, stands for _____

10. (Ch. 11) Three of the best-known synthetic benchmarks are the _____, _____, and _____ metrics.

Orientation- This part has already been taken. Your score will be added to the exam. **(10 pts)**