

CS3733-B04 Final Exam

Name: _____

This exam consists of two parts. If you have read the textbook, attended the lectures, done the homework, and studied the notes you are prepared.

Remember that there is a code of academic honesty at WPI and you are expected to do your own work. Good luck.

1. (6 pts.) Which of the following is not normally considered part of software architecture?
 - a. structure of the system
 - b. mechanisms for distribution, security, and persistence
 - c. product packaging
 - d. critical decisions about the software

2. (9 pts.) How is a three-tier system architecture different from a client-server architecture?

3. (9 pts.) You have been hired by WORST Inc. to develop an on-line inventory system that will use a three-tiered model. One of the most important requirements they have is that the clients will be able to perform work when the server is unavailable. Based upon this requirement, would you choose thin or thick clients? Why?

4. (8 pts.) What is a design pattern?

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5. (8 pts.) Name three XP practices and give a short (one or two sentences) description of each.
6. (6 pts.) Which of the following is not a level of testing?
- a. organization
 - b. integration
 - c. system
 - d. unit
7. (7 pts.) What is the purpose of testing?
8. (8 pts.) Out of the following set of test cases for testing a Roman numeral converter program, one of them can be removed since it is subsumed by the one of the others. Put a line through the one that can be removed.

Input	Expected output
I	1
IV	4
IX	9
XV	15
L	50
XCIX	99
C	100
D	500
M	1000

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9. (13 pts.) Consider the following method. How many paths are there through the code are there? Do you have to test all of them? If not, why not.

```
public int getActionNumber(boolean a, boolean b, boolean c)
{
    if (a && b)
        return 1;
    if (b && !c)
        return 2;
    else if (!b || !c)
        return 3;
    if (b || !c)
        return 4;
    if (!b || a)
        return 5;
    return 6;
}
```

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10. (13 pts.) Since there are three boolean variables that are used in the above method, there are a maximum of 8 possible valid combinations that you would have to include in your test cases. Not all of them are needed. Use the following test case table to describe the minimum number of test cases needed to do all condition testing. The table will take eight test cases, but that's just so I don't give away part of the answer. 😊

Input			Expected output
a	b	c	

11. (7 pts.) What is a metric? Why is it different from a measure?

12. (6 pts.) According to Parnas and Clements, why do you have to fake the process?



Have a Great Holiday Break!