EECS 768 Virtual Machines
Questions List for Chapters 2

1. What is emulation? How is emulation different from simulation? Name the two strategies of achieving emulation.
2. Explain the structure, advantages, and disadvantages of: decode-dispatch interpreter, and indirect threading interpreter.
3. Provide a motivation of doing *predecoding* during interpretation.
4. What is the benefit of a *direct* threaded interpreter over an *indirect* threaded interpreter?
5. Explain binary translation. What are its advantages and disadvantages as compared to decode-dispatch interpretation?
6. What defines the *state* of a process? How to maintain interpreter register state if the number of target registers $<$ number of source registers? What is the effect on performance?
7. Explain the genesis of the code discovery problem. What can we do to eliminate this issue?
8. How is the code location problem different from code discovery?
9. What is *incremental* code translation? Why not use *complete* code translation instead?
10. Why does a VM need to keep track of the *Source* PC during binary translation? Describe one mechanism of tracking the Source PC.
11. Describe the benefit and (a possible) mechanism for *translation chaining*.
12. Explain the applications of same-ISA emulation.
13. Do condition codes provide any complications during the emulation of a MIPS ISA process on a x86 machine? How about emulating a x86 program on the MIPS? Explain.
14. Describe *lazy* conditional code evaluation? When is it useful?