

COS 335 Spring 2009 Assignment 9 Due: Thursday April 29

1. (1 pt) Text ex. 12.5, p.457
2. (1 pt) Text ex. 12.6, p.457
3. (2 pts) Text ex. 13.7 p 498. For part a when doing register mapping first, your goal is to minimize register usage. Part a can be done with as few as three machine registers. For part b, reorder instruction to maximize pipeline throughput, then map registers. You will need more registers than part a, but less than the 6 symbolic registers shown
4. (2 pts) Text ex 13.9 p 498. The MIPS machine does not have a register-to-register MOV instruction, among other things. All solutions involve either three operand arithmetic/logic instructions (e.g., ADD rdest, rop1, rop2) or immediate-mode arithmetic/logic instructions. Consider R_0 (constant value of 0) as an operand.
5. (2 pts) Text ex. 13.11 a through h. p.499. This is similar to 13.9 The NOP instruction in (i) can be simulated in many ways
6. (1 pt) Text ex 14.5 p532
7. (1 pt) Text ex 14.6 (a) p533

Both 6 and 7 involve examining instruction streams for dependencies. You can expect a similar final exam question.