Computer Organization: Quiz 2 **Student ID:** **;Name:**

(TRUE or FALSE) (100 pts)

1. (X) Design principle 1 is simplicity favors regularity. The 32-bit MIPS follows this design principle because its addressing formatting is pretty simple.
2. (O) Instructions addi, lb, and beq all need to perform sign extension.
3. (x) When a procedure is running, the stack pointer usually needs to change. With the dynamically changing stack pointer, the system software cannot access a fixed memory location using the stack pointer.
4. (O) If we increase the number of registers in 32-bit MIPS by 2, we may need to decrease the number of MIPS instructions.
5. (O) In MIPS, PC-relative addressing mode computes the target address by adding PC with four times of the instruction offset because word align makes the least significant two bits always 0 and then we can ignore these two bits in the instruction.
6. (O) If a procedure is a caller as well as a callee, it needs to store return address and argument values when it calls the other procedure for execution.
7. (O) Dynamic linking can reduce file size of an executable file because library routines are not embedded in the executable program and are loaded into memory only when they are invoked.
8. (X) The value of register $s0 is 900003D (hex) after performing two instructions: lui $s0, 3Dh, ori $s0, $s0 900h.
9. (O) The direct jump addressing mode yields the target address by concatenating PC(31~28) with (address field constant × 4).
10. (X) Pseudoinstructions are special but powerful instructions defined in machine instruction set.