

0907432 Computer Design (Fall 2015)

Quiz 1

رقم الشعبة: 1

الرقم التسلسلي:

الاسم:

Instructions: Time 20 minutes. Open book and notes exam. No electronics. Please answer all problems in the space provided and limit your answer to the space provided. **No questions are allowed.**

<Good Luck>

Q1. Assume that the 5-stage pipelined processor studied in the class resolves branch instructions in the decode stage and solves data hazards through forwarding and stalls. Use the pipeline diagram below to show how this processor executes the shown instructions. Assume that the branch is taken.

[5 marks]

Address	Instruction	1	2	3	4	5	6	7	8	9	10	11	12
00000060	sub \$1, \$4, \$8	F	D	E	M	W							
00000064	beq \$3, \$1, 6		F	D	D	E	M	W					
00000068	and \$12, \$2, \$5			F	F	n	n	n	n				
...													
00000080	add \$20, \$19, \$19					F	D	E	M	W			

Q2. For the processor described above, draw the circuit needed in the hazard detection unit to detect the data hazard in the shown sequence of instructions.

[5 marks]

