**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ID: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Department of Computer Science and Engineering**

**CSE340: Computer Architecture   
Summer 2015**

**Quiz-4**

**Full Marks: 15 Time: 20 Mins**

1. What is pipelining in computer architecture? Why do we need pipelining? **5**
2. Consider the sequence of instruction below. Identify the data hazard and give solution (only draw the figure in both cases). **10**

sub $2, $1, $3

and $12, $2, $5

or $13, $6, $2

add $14, $2, $2

sw $15, 100($2)

**Department of Computer Science and Engineering**

**xor $4,$1,$5**

**CSE340: Computer Architecture   
Summer 2015**

**Quiz-4**

**Full Marks: 15 Time: 20 Mins**

1. What are the challenges of MIPS pipelining in computer architecture? **3**
2. Consider the sequence of instruction below. Identify the data hazard and give solution (only draw the figure in both cases). **12**

add $1, $2, $3

add $4, $5, $6

add $7, $8, $9

add $10, $11, $12

add $13, $14, $1

add $15, $16, $7

add $17, $18, $13

add $19, $20, $17

**xor $4,$1,$5**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ID: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Department of Computer Science and Engineering**

**CSE340: Computer Architecture   
Summer 2015**

**Quiz-4**

**Full Marks: 15 Time: 20 Mins**

1. What do you expect from an ideal Pipelining? **5**
2. Consider the sequence of instruction below. Identify the data hazard and give solution (only draw the figure in both cases). **10**

add $2, $1, $3

or $13, $6, $2

sub $12, $2, $5

add $14, $2, $2

sw $15, 100($2)

**xor $4,$1,$5**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ID: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Department of Computer Science and Engineering**

**CSE340: Computer Architecture   
Summer 2015**

**Quiz-4**

**Full Marks: 15 Time: 20 Mins**

1. Compare multi cycle and pipelining implementation of a datapath in MIPS? **5**
2. Consider the sequence of instruction below. Identify the data hazard and give solution (only draw the figure in both cases). **10**

add $1, $2, $3

add $4, $5, $6

add $7, $1, $9

add $10, $11, $12

add $13, $7, $1

add $15, $16, $7