# COL733 Quiz 4

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TOTAL POINTS

**8 / 10**

## Q1 4 pts

*1.1* Q1.1- Raft **1 / 1**

✓ **- 0 pts** *Correct (a )*

    **- 1 pts** Incorrect

*1.2* Q1.2 - CRAQ **1 / 1**

✓ **- 0 pts** *Correct (a )*

    **- 1 pts** Incorrect

*1.3* Q1.3 - ZooKeeper **1 / 1**

✓ **- 0 pts** *Correct (a,b)*

    **- 1 pts** Incorrect

*1.4* Q1.4 - Dynamo **1 / 1**

✓ **- 0 pts** *Correct (a,b,c,d)*

    **- 1 pts** Incorrect

## Q2 6 pts

*2.1* Q 2.1 **0 / 2**

    **- 0 pts** Correct (a,b,c,d)

✓ **- 2 pts** *Incorrect*

*2.2* Q 2.2 **1 / 1**

✓ **- 0 pts** *Correct (False)*

    **- 1 pts** Incorrect

*2.3* Q 2.3 **1 / 1**

✓ **- 0 pts** *Correct( True )*

    **- 1 pts** Incorrect

*2.4* Q 2.4 **1 / 1**

✓ **- 0 pts** *Correct (True)*

    **- 1 pts** Incorrect

*2.5* Q 2.5 **1 / 1**

✓ **- 0 pts** *Correct (False)*

    **- 1 pts** Incorrect

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*Note: Justifications are not necessary. You may provide justification if you are confused about what is being asked and want to clarify why you are giving a certain answer.*

**Q1 [4 marks]** Assume x and y are equal to zero in the beginning. Which of the following histories are *possible* in each of the following systems? Just write answers of the form "b, c, d". Please note that for a given system, marks are awarded only <u>if the possible histories</u> answered are in fact all the possible histories for the system. If <u>you miss a history</u> or claim an extra history, you get a zero for that system.

```
        C1   ←── Wx1 ──→
a.      C2                  ←── Rx1 ──→
-----------------------------------------------------------
        C1   ←── Wx1 ──→
b.      C2                  ←── Rx0 ──→
-----------------------------------------------------------
        C1   ←── Wx1 ──→                                    ✗
c.      C2              ←── Wy1 ──→  ←── Rx0 ──→
-----------------------------------------------------------
d.      C1   ←── Wx1 ──→  ←── Rx0 ──→                        ✗
```

(c. and d. are circled)

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**Q1.1 [1 mark]** Raft

    *a.*

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**Q1.2 [1 mark]** CRAQ

    *a*

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**Q1.3 [1 marks]** ZooKeeper  (Q1.3 circled)

    *a, b*

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**Q1.4 [1 marks]** Dynamo

    *a, b, c, d*

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**Q2 [6 marks]** Let us say that we modify CRAQ such that a non-tail replica returns the latest clean version that it has.

**Q2.1 [2 marks]** Which of the above histories are *possible* with this system? Again, write answers of the form "b, c, d"

a, b,

**Q2.2 [1 marks]** This system is expected to provide a better throughput for *write-heavy workloads* compared to the original CRAQ. Write True or False.

~~False,~~ False,    Time to complete a write remains the same for each write.

**Q2.3 [1 marks]** This system is expected to provide a better throughput for *half-write half-read workloads* compared to the original CRAQ. Write True or False.

True.    Latency of read decreases, we can service more reads, better throughput.

**Q2.4 [1 marks]** This system is expected to reduce the load on the *tail server* compared to the original CRAQ. Write True or False.

True.    There will be less no. of requests for confirming dirty version to tail.

**Q2.5 [1 marks]** This system is expected to reduce the load on the *head server* compared to the original CRAQ. Write True or False.

False,    there is no change for the head server.