**North SouthUniversity**

Department of Computer Science and Engineering

Quiz-1, Section – 2, Summer’17

Course No: **CSE 332** Course Title: **Computer Organization and Design**

Time: 20 min Full Marks: 15

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| 1. | Write down the equation for calculating the execution time of a CPU? | 2 |
| 2. | What is CPI ? How does it affect the performance of a CPU? | 1+2 |
| 3. | Suppose we have developed new versions of a processor with the following characteristics.  **Version Voltage Clock Rate**  Version 1 1.75 V 1.5 GHz  Version 2 1.2 V 2 GHz  How much has the capacitive load varied between versions if the dynamic power has been reduced by 10%? | 3 |
| 4. | The following table shows the number of instructions for a program with two sequences:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **Arith** | **Store** | **Load** | **Branch** | **Total** | | **a.** | 650 | 100 | 600 | 50 | 1400 | | **b.** | 750 | 250 | 500 | 500 | 2000 |   Assuming that arith instructions take 1 cycle, load and store 5cycles, and branches 2 cycles, and the clock rate is 2 GHz processor.  a. Which one is faster?  b. Find the CPI for the sequence.  b. If the number of load instructions can be reduced by one half,what is the speedup? | 3+2+2 |