**CSE 305 – Computer Architecture**

Class Test -1 (Total Marks: 20)

**Student No:**

1. The following table shows the numbers of instructions for a program.

|  |  |  |  |
| --- | --- | --- | --- |
| Arithmetic | Store | Load | Branch |
| 500 | 50 | 100 | 50 |

The following table shows the number of cycles taken by each instruction.

|  |  |  |  |
| --- | --- | --- | --- |
| Arithmetic | Store | Load | Branch |
| 1 | 5 | 5 | 2 |

1. What is the execution time of the program in a 4 GHz processor? (5)
2. What is the CPI of the program? (5)
3. If the number of load instructions can be reduced by half, what is the speed-up and CPI? (5)
4. Suppose a program runs in 100 seconds on a computer, with division operations responsible for 80 seconds of this time. How much do you have to improve the speed of division if you want the program to run four times faster? (5)