Hadassah Academic College

Department of Computer Science

Computer Architecture **Exercise 4**

The compilation of a C language program produces the following distributions of instructions:

Type i	Instructions	Clock Cycles per Instruction
ALU	475	6
Branch	128	10
Load	154	8
Store	141	8
Other	102	7

Find (up to 3 places after the decimal point):

1. **IC**
2. $\mathbf{IC_i/IC}$ for each instruction type **i** in percent
3. **CPI**
4. The relative improvement in run time after lowering the **CPI** for branch instructions from **10** to **7**.
5. Of the 128 branch instructions, 52 are **JMP** with **CPU = 15** and the rest are conditional branch **JCC**.

   Find the **CPI** of the **JCC** instructions.