UNITED INTERNATIONAL UNIVERSITY
Department of Computer Science and Engineering (CSE)

Course Title: Computer Architecture **Course Code: CSE 3313** **Credit Hours: 3.0**

Trimester & Year: Summer 2022 **Section: D** **AZ**

CT-01

Total Marks: 20 Time: **40** min

1. Draw the basic diagram of von Neumann Architecture. **4**

2. Computer A has attributes: 3.5ns clock period, 10s CPU time. Design Computer B Aim for 9GHz Clock Rate and capable of causing 4 × clock cycles (A). Fill the Following Table calculating all the parameters. **6**

Parameters	A	B	Remark
CPU Time			
Clock Cycles			
Clock Period			
Clock Rate			

3. The following table shows the number of instructions for a program. **3+3+4**

Arith	Store	Load	Branch	Total
750	250	500	500	2000

Assume that ***Arith*** instructions take 1 cycle, ***Load*** and ***Store*** take 5 cycles each and ***Branch*** take 2 cycles.

- What is the execution time (CPU Time) of the program in a 2 GHz processor?
- Find the Average CPI for the program.
- If the number of ***Load*** instructions can be reduced by **one half**, what is the speedup of the program and the Average CPI?