

1. What is the difference between a direct and indirect address instruction? How many references to memory are needed for each type of instruction to bring an operand into a processor register? (5 pts)

answer

2. Use the MANO machine data path diagram presented in the lecture notes to answer the following questions:
 - (a) Explain why each of the following micro-operations cannot be executed during a single clock pulse in the system shown in slide 8. (5pts)
 - (b) Specify a sequence of micro-operations that will perform the operation. (15pts, 5 each)
 - i. $IR \leftarrow M[PC]$
 - ii. $AC \leftarrow AC + TR$
 - iii. $DR \leftarrow DR + AC$