QUIZ1

A computer uses memory unit with 256K words of 32 bits each.
A binary instruction code is stored in one word of the memory.

What is the length (in bits) of one instruction?

The instruction has four parts:
1. An indirect bit
2. An operation code
3. A register code part, to specify one of 64 registers.
4. An address part

How many bits are in the register code part?

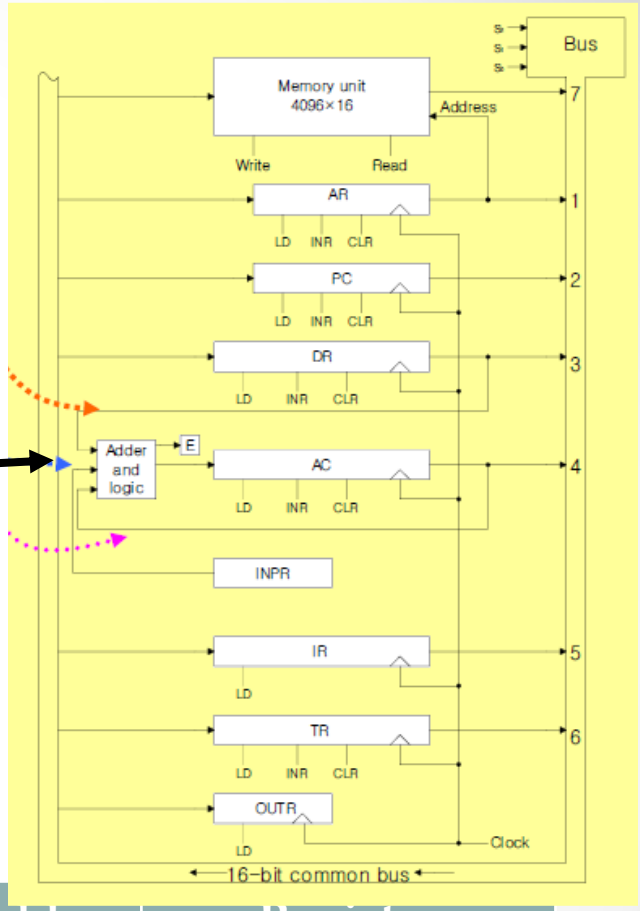
How many bits are in the address part?

How many bits are in the operation code part?

How many bits are in a data operand?

QUIZ2

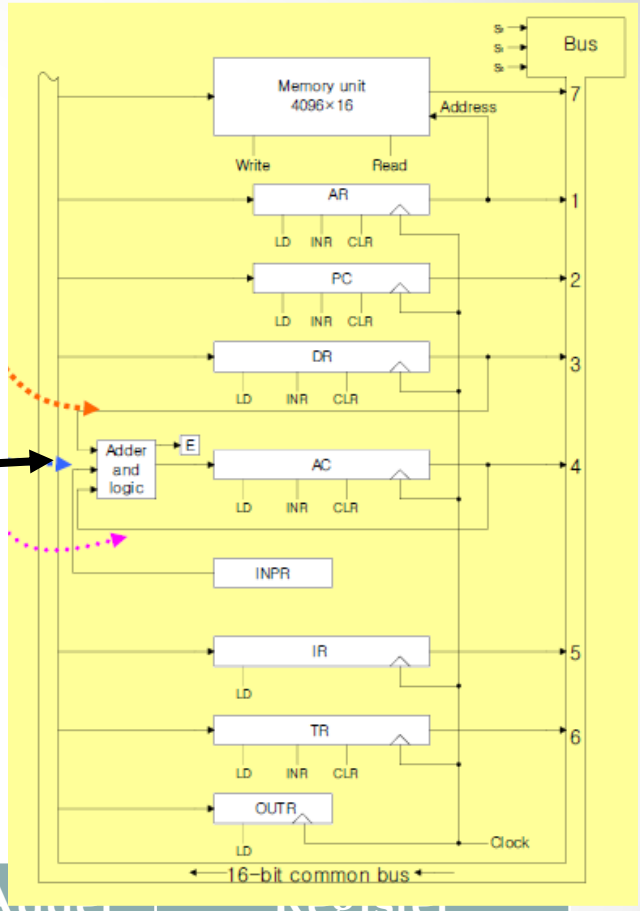
The following control inputs are active in the bus system shown in The Bus slide or here
For each case specify the register transfer that will be executed during the next clock transition



S_2	S_1	S_0	LD of register	Memory oper.	Adder oper.	Register Transfer
1	1	1	IR	Read	-	
1	1	0	PC	-	-	
1	0	0	DR	Write	-	
0	0	0	AC	-	Add	

QUIZ3

The following register transfer are active in the bus system shown in The Bus slide or here
For each case fill the table below



S_2	S_1	S_0	LD of register	Memory oper.	Adder oper.	Register Transfer
						AR ← PC
						IR ← M[AR]
						M[AR] ← TR
						AC←DR, DR←AC

QUIZ4

Draw a timing diagram similar to this one, assuming that SC is cleared to 0 at time T_3 if control signal C_7 is active:

$$C_7 T_3: SC \leftarrow 0$$

C_7 is activated with the positive clock transition associated with T_1.