Quiz 1 20/2/2020

In the Hypothetical Machine the contents of memory was as shown. And PC contents is 300. Show the contents of memory and PC , AC , IR after execute three instructions (three fetch cycle and there execute cycle)

Memory						
300	1	9	4	0		
301	5	9	4	1		
302	2	9	4	1		
			•			
940	0	0	0	3		
941	0	0	0	2		

# Answer (1)

5	iubjeet:	2000	_		Date:		44	
1	Fetc	hing		+	exec	uting	)54	
	Memory	CP	u		Memory		CPU	
4300	1940	300	PC	300	1940		301	PC
301	5941	1333	Ac	301	5941	0	0003	AC
302	5941	1940	IR	302	2941		19 40	IR
940		8000	Jan ?	940	0003	1 3	900	055
941	0002	4000	le de	941	0002		2000	194
1			199	2				000
	Memory	CP4	(5)	1	Menory		CPU	111
300	1940	301	PC	300'	1940		302	PC
301	5941	0003	AC	301	5941		0000	-4
302	2941	9 5941	IR	302	2941	/	594	IJSR
PELL	648	5600	1200	97	1562	3+	2-5	
940	0003			940	0003	7	2 -	
941	0002	1 2 000	1000	941	0002	1	000	900
3]		1 1 500	iles	41		1	6.0.5	
	Memory	CPU	The sky		Memory		CPU	mò
300	1940	302	PC				303	PC
301	5941		No. of Concession, Name of Street, or other Designation, Name of Street, or other Designation, Name of Street, Original Property and Name of Stree	The second second	5941	1	0005	Ac
302	7941	> 2941	IR	302	32941		2941	IR
940	0003			-	0003			
941	2000			941	0005	K		
57				61				

Show the contents of PC , AC and IR and memory after the execution of each instruction of the following program on the Hypothetical Machine:

300 LOAD 550

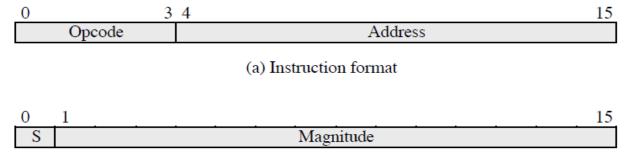
301 ADD 551

302 STORE 600

<u>Where</u> the contents of memory at 550 is 3 and at 551 is 4. The following figure provide the main characteristics of Hypothetical Machine.

### Answer (2)

*	Setal	ain a	5 9 5			CNOC	.+:		*
	Fetching					Exec	Ulov	Statement of State	
0	Memory		-P4			nemory	1	CP4	
300	1990	h	300	PC	300	1550	1	301	P
301	5551		I Noted	AC	301	5551	10	0003	AC
302	2600	19	1550	IR	302	2600		1550	丁ド
550	0003				550	0003		200 0	
551	0004				551	0004			
600					600				1
TII					2				
	Memory		CP4			nenary		CP4	
300	1550	1	1301	TPC	- marin	1550		302	P
301	5551	5	-	3 Ac	-	5551	1	0007	A
302	THE RESERVE TO THE PERSON NAMED IN	1	555			2600		5551	15
			-	1.00	-				1
550	0003	7	10000	13.6	550	0003	3	+ 4 = 7-	1
551	0004				551	0004	-	/	
600					600				
-	-		. 10 101	T. all	141		1		
13			1000	11633	19				
*									
	memory		cpu	1		menory		CP4	
300	1550		1302	PC	300	1550		303	P
301	5551		007	-	301		-	- 007	A
302	2600	-	2600	_		2600	11	2600	I
			-		-		1		_
550	0003				550	0003			
551	0004				551	0004			
600					-	0007	2		
000	THE RESERVE OF THE PARTY OF THE			-					-
5					6				



#### (b) Integer format

Program Counter (PC) = Address of instruction Instruction Register (IR) = Instruction being executed Accumulator (AC) = Temporary storage

(c) Internal CPU registers

0001 = Load AC from Memory 0010 = Store AC to Memory 0101 = Add to AC from Memory

(d) Partial list of opcodes

The hypothetical machine also has two I/O instructions:

0011 = load AC from I/O

0111 =store AC to I/O

In these case, the 12-bi address identifies a particular I/O device. Show the program execution for the following program:

- 1. Load AC from device 5.
- 2. Add contents of memory location 940.

### 3. Store AC to device 6.

Assume that the next value retrieved from device 5 is 3 and that location 940 contains a value of 2.

## Answer (3)

21 0
Memory
300 300 5
301 5940
302 7006
After executing three instructions
Device 5 : 0003
940 : 2
Device 6: 0005