Daily Practice Problems:
Micro-Operations

Question 1

1 micro-operation takes a minimum of

a) 1 CPU cycle time
b) 1 memory cycle time
c) 1 DMA cycle time
d) None

Question 2

In RTL language which of the following is the wrong way to specify a memory write?

a) M[2000] ← R3
b) M[R2] ← R6
c) M[x] ← R3
d) None

Question 3

Which of following shift operation can result the value zero even if the register operand is non-zero before shift?

a) Logical Right Shift
b) Circular Left Shift
c) Arithmetic Left Shift
d) Arithmetic Right Shift

Question 4

Which of following is not wrong about ADD micro-operation and ADD instruction?

a) Both are same
b) ADD instruction requires ADD micro-operation
c) ADD micro-operation Requires ADD-operation
d) Both are independent

Question 5

Consider an instruction which is stored in memory at address 400 (decimal) and the size of instruction is 8bytes. The value of PC after execution of this instruction is?

(A) 400 always

(B) 408 always

(C) 404 always

(D) None

Question 6

Consider an instruction which is stored in memory at address 800 (decimal) and the size of instruction is 8bytes. Consider that during execution of this instruction an interrupt is occurred then what value is PUSHED onto the stack as return address?

(A) 800 always

(B) 808 always

(C) Undetermined with given information

(D) No value is PUSHED onto the stack

Question 7

Consider a computer which has 2 word instructions. 1 word size is 2 bytes. In main memory an instruction is stored at location 234 (decimal). The decimal value of PC immediately after the fetch of this instruction is?

a) 234
b) 236
c) 238
d) None

Question 8

Which of the following is not correct?

a) In logical shift 1 new bit has been always added
b) In arithmetic shifts no any bit is discarded
c) In circular shift no any bit is discarded
d) In arithmetic left shift only overflow can occur

Question 9

Consider the following program segment. Here R1, R2 and R3 are the general purpose register. Assume that the content of memory location 3000 is 50 and location 2000 is 25. Content of register R2 is 12. All numbers are in decimal. After the execution of this program the value of memory location 2000 is?

a) 15
b) 27
c) 30
d) 42

Instructions	Operations
MOV R1, #15	R1 ← #15
MOV (2000), R1	M[2000] ← R1
ADD R2, (2000)	R2 ← R2 + M[2000]
MOV(3000), R2	M[3000] ← R2
MOV R3, R1	R3 ← R1
ADD R3, (3000)	R3 ← R3 + M[3000]
MOV (2000), R3	M[2000]← R3
HALT	Stop

Question 10

Consider the following program segment. Here R1 and R2 are the general purpose register. Assume that the content of memory location 3000 is 30 and location 2000 is 18. Content of register R2 is 12. All numbers are in decimal. After the execution of this program the value of R2 is?

	Instructions	Operations
	MOV R1, #5	R1 ← #5
X:	DEC R1	R1 ← R1 – 1
	JNZ Y	Jump to Y on Non-Zero
	ADD R2, (3000)	R2← R2 + M[3000]
	JMP Z	Jump to Z
Y:	ADD R2, (2000)	R2 ← R2 + M[2000]
	JMP X	Jump to X
Z:	HALT	Stop

Question 11

Which of the following Logic-Gate(S) can be used to detect the overflow for arithmetic left shift?

1. X-OR
2. X-NOR
3. OR
4. AND

a) Only 1
b) Only 1 & 2
c) Only 1 & 3
d) Only 1 & 4

Question 12

Which of the following statements is/are not wrong?

a) 2 micro-operations can be performed simultaneously

b) Only 1 micro-operation is performed at a time

c) Memory read and Memory write both can be performed simultaneously

d) None

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Happy Learning.!