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a) FETCH, DECODE, EXECUTE

b) AN ISA is the part of the processor visible to the programmer or compiler writer. It is the link between software & hardware.

AN ISA is a complete description of a processor from the programmers point of view.

c) CISC - Complex Instruction Set Architecture

RISC - Reduces " " - n

CISC - EXAMPLE IA-32

RISC - EXAMPLE MIPS

d) nop - stands for no-operation

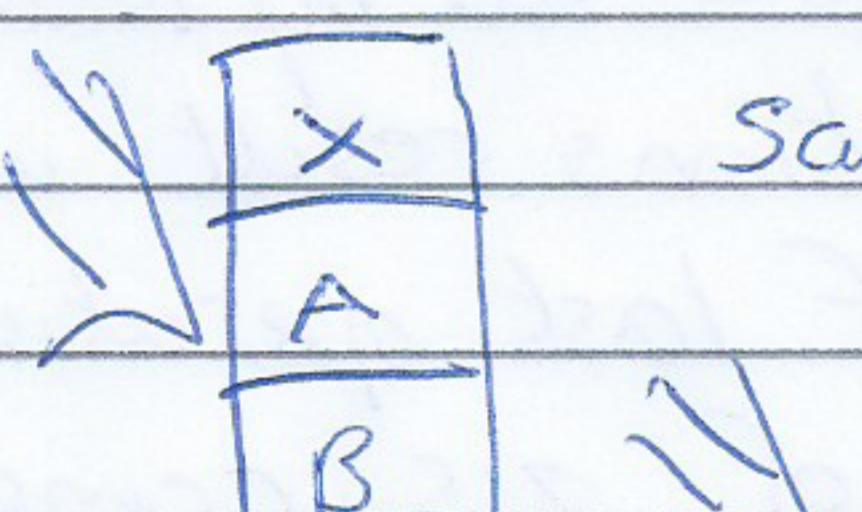
basically passes a blank instruction that doesn't change the status of any registers or memory etc

USED usually to avoid data hazards

e)

A
B
:
:

Say we have a value X and we run a push command



Say we now Pop

A
B
:

Push like store
Pop like load

f \$zero, like every register, holds 32 bits

g Pollack's rule states a performance increase in a microprocessor due to microarchitecture advances is roughly proportional to the square root of the increase in complexity.

h SIMD - single instruction, multiple data
(type of parallel processor that performs the same operation on multiple data points simultaneously)

j IA-32 is big endian

ie

LSB(0,1,2,3,4,5,6,7) → MSB

→ Fed in

First

i Virtual memory → main memory
gives the impression it has loads of addresses.

l CARRY FLAG - Carry out generated by last operation

ZERO FLAG - Last operation's result was zero

SIGN FLAG - Result of last operation was negative

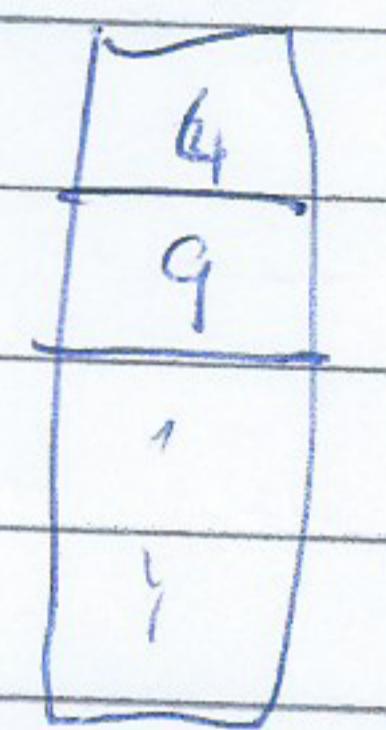
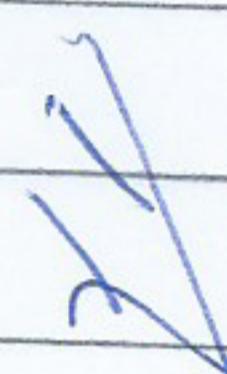
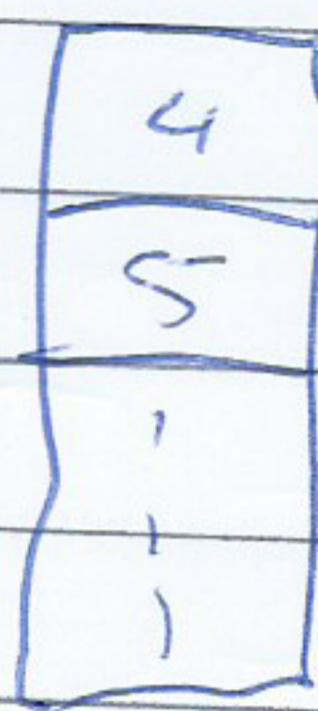
OVERFLOW FLAG - Overflow of 2's complement arithmetic

m True - IA-32 allows add to access registers, immediates & memory

n Native code - programming code compiled to run on one particular processor hardware and uses CPU's machine instructions.

n JAVA VIRTUAL MACHINE - ALLOWS YOU TO
compile code once and run it on any machine

c i add



i add adds the first two
elements in the stack. saves them
in element two's spot

then pops off top element
so sum now at top
spot

