

## UNIT\_3: CPU

### Exercise 1:

1. The arithmetic logic unit (ALU) receives operands supplied by processor registers, performs arithmetic and logic operations, and transmits the result in processor registers for storing it.
2. External components of CPU are a main memory, input/output (I/O) circuitry, and specialized processors such as graphics processing units (GPUs).
3. If a jump instruction was executed, the program counter will be modified to contain the address of the instruction that was jumped to and program execution continues normally.
4. The synonyms of:
  - treatment : processing
  - type : kind
  - retrieving : fetching
  - skip : jump
5. The opposites of:
  - seldom : often
  - complicate : facilitate
  - before : next
  - finishes : continuous

### Exercise 2: (Grammar practice)

#### **Part A**

1	wouldn't have been
2	invite
3	will make
4	would have enjoyed
5	happens
6	would have had
7	answer
8	will be
9	stops
10	were

#### **Part B**

1	Could
2	needn't
3	should
4	might
5	Can
6	couldn't
7	can't
8	don't have to
9	mustn't
10	didn't have to

**Part C**

1	can't have taken
2	could have left
3	should have phoned
4	could have driven
5	should have been
6	must have heard
7	should have stopped
8	Shouldn't have gone out
9	must have taken
10	could have gone

**Part D**

1	He asked me which coat I had taken.
2	He said he would see me on the following Tuesday.
3	They asked me how much it was.
4	She asked me to hurry up.
5	He asked me to sit down.
6	She said she couldn't do it.
7	She said she would send an e-mail from the airport.
8	He asked me to turn on the computer.
9	He asked why he couldn't connect to the Internet.
10	He said he was sorry he was late.

**Part E**

1	No, she won't.
2	Yes, I did.
3	No, they aren't.
4	No, I haven't.
5	Yes, they have.
6	No, I don't.
7	Yes, we have.
8	No, they wouldn't.

**Exercise 3:**

Typically, flags in the status **register** are modified as effects of arithmetic and bit manipulation **operations**. For example, a Z bit may be set if the result of the operation is **zero** and cleared if it is nonzero. Other classes of instructions may **also** modify the flags to indicate **status**. For **example**, a string instruction may do so to indicate whether the instruction **terminated** because it found a match/mismatch or because it found the end of the string. The **flags** are read by a subsequent conditional instruction so that the **specified** action (depending on the processor, a jump, call, return, or so on) occurs only if the flags **indicate** a specified result of the earlier instruction. A status register may often have other fields as **well**, such as more specialized flags, interrupt enable **bits**, and similar types of information. During an interrupt, the status of the thread currently **executing** can be preserved (and later recalled) by storing the current value of the status register along with the **program** counter and other active registers into the machine stack or some other reserved area of **memory**.

**Exercise 4:** Translate to Ar/Fr language the following sentences :

English	French
<p>A <b>microprocessor</b> is a computer processor where the data processing logic and control is included on a single integrated circuit, or a small number of integrated circuits.</p> <p>The microprocessor contains the arithmetic, logic, and control circuitry required to perform the functions of a computer's central processing unit. The integrated circuit is capable of interpreting and executing program instructions and performing arithmetic operations.</p> <p>The microprocessor is a multipurpose, clock-driven, register-based, digital integrated circuit that accepts binary data as input, processes it according to instructions stored in its memory, and provides results (also in binary form) as output. Microprocessors contain both combinational logic and sequential digital logic, and operate on numbers and symbols represented in the binary number system.</p>	<p>Un microprocesseur est un processeur informatique où la logique et la commande de traitement de données sont incluses sur un seul circuit intégré ou un petit nombre de circuits intégrés.</p> <p>Le microprocesseur contient le circuit arithmétique, logique et de commande requis pour effectuer les fonctions de l'unité de traitement centrale d'un ordinateur. Le circuit intégré est capable d'interpréter et d'exécuter des instructions de programme et d'effectuer des opérations arithmétiques. Le microprocesseur est un circuit intégré numérique basé sur des registres multiples, axé sur l'horloge, basé sur un registre qui accepte les données binaires comme entrée, les processus selon les instructions stockées dans sa mémoire et fournit des résultats (également sous forme binaire) comme sortie. Les microprocesseurs contiennent à la fois une logique combinatoire et une logique numérique séquentielle et fonctionnent sur des chiffres et des symboles représentés dans le système de numéros binaires.</p>
<p>A <b>microcontroller</b> contains one or more CPUs (processor cores) along with memory and programmable input/output peripherals. Microcontrollers are designed for embedded applications, in contrast to the microprocessors used in personal computers.</p> <p>Microcontrollers are used in automatically controlled products and devices, such as automobile engine control systems, implantable medical devices, remote controls, office machines, appliances, power tools, toys and other embedded systems. By reducing the size and cost compared to a design that uses a separate microprocessor, memory, and input/output devices, microcontrollers make it economical to digitally control even more devices and processes.</p>	<p>- Un microcontrôleur contient un ou plusieurs processeurs (cœurs de processeur) ainsi que des périphériques d'entrée/sortie programmables. Les microcontrôleurs sont conçus pour les applications intégrées, contrairement aux microprocesseurs utilisés dans les ordinateurs personnels.</p> <p>Les microcontrôleurs sont utilisés dans des produits et des périphériques contrôlés automatiquement, tels que des systèmes de contrôle des moteurs automobiles, des dispositifs médicaux implantables, des télécommandes, des machines de bureau, des appareils électroménagers, des outils électriques, des jouets et d'autres systèmes embarqués. En réduisant la taille et le coût par rapport à une conception qui utilise un microprocesseur séparé, une mémoire et des périphériques d'entrée/sortie, les microcontrôleurs le rendent économiques pour contrôler numériquement encore plus de périphériques et de processus.</p>

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