UNIT_2: what is a sensor?

Exercise 1:

1. After observing the changes of any form of energy, the sensor sends the detected input to a microcontroller or microprocessor. Then, it produces a readable output signal that corresponds to change in the input signal.
2. The sensor can be classified by four types.
3. Passive sensors don't require any external power signal and directly generates output response. However, active sensors require an external excitation signal or a power signal.
4. Sensors are the first element in the measuring chain.
5. The synonym of:
   - detector: sensor
   - remarking: observing
   - emits: sends
   - principal : major
6. The opposite of:
   - digital: analogical
   - output: input
   - passive: active
   - internal : external

Exercise 2: (Grammar practice)

Part A

1	am staying
2	are looking at
3	know
4	are having
5	Are you enjoying
6	believe
7	are visiting
8	start
9	finish
10	am studying
11	know
12	am writing
13	is working
14	lives
15	is sitting

Part B

1	have broken
2	have lived
3	moved
4	Have you been
5	have been

6	shouted
7	have never done
8	said
9	apologized
10	stayed
11	is had
12	looked
13	did just left
14	is just left
15	have worked

Part C

1	Shall I carry your suitcase for you?
2	Wait a minute, I will open the door.
3	The plane to Paris leaves at ten, stops at Amsterdam and arrives at twele.
4	Look at those clouds. It is going to rain.
5	I will never speak to him again.
6	Will she study history at university?
7	I was going to leave early because it was raining, but I didn't.
8	My mother will be angry when she finds out.
9	He will ate me if he can't come to the party.

Part D

1	The aero-planes are checked every month.
2	He has been given some new clothes.
3	These rooms are cleaned every evening.
4	Tow million copies of the books were sold last year.
5	The examination papers are checked in this room.
6	As soon as you arrive in the hospital, your temperature is checked.
7	He hasn't been invited.
8	The lorries are sent by aero-plane.

Exercise 3:

Sensors/Detectors/Transducers are electrical, opto-electrical, or electronic devices composed of specialty electronics or otherwise sensitive materials, for determining if there is a presence of a particular entity or function. Many types of sensors, detectors, and transducers are available including those for detecting a physical presence such as flame, metals, leaks, levels, or gas and chemicals, among others. Some are designed to sense physical properties such as temperature, pressure, or radiation, while others can detect motion or proximity. They operate in a variety of manners depending on the application and may include electromagnetic fields, or optics, among others. Many applications over a wide range of industries use sensors, detectors, and transducers of many kinds to test, measure, and control various processes and machine functions. With the advent of the Internet of Things, the need for sensors as a primary tool to provide enhanced automation is increasing.

Exercise 4: Translate to Ar/Fr language the following paragraphs :

English	French
The world is full of sensors. In our day-to-day life, we come across automation in all the activities. Automation includes turning on lights and fans using mobile phones, controlling TV using mobile applications, adjusting the room temperature, smoke detectors, etc. All these are done with help of sensors. These days, any embedded system based product has inbuilt sensors in it.	Le monde est plein de capteurs. Dans notre vie quotidienne, nous rencontrons une automatisation dans toutes les activités. L'automatisation comprend des lumières et des ventilateurs à l'aide de téléphones mobiles, en contrôlant la télévision à l'aide d'applications mobiles, ajustant la température ambiante, les détecteurs de fumée, etc. Tous ces sont effectués avec l'aide de capteurs. Ces jours-ci, tout produit basé sur un système intégré a des capteurs intégrés.
A sensor is defined as a device or a module that helps to detect any changes in physical quantity like pressure, force or electrical quantity like current or any other form of energy. After observing the changes, sensor sends the detected input to a microcontroller or microprocessor. Finally, a sensor produces a readable output signal, which can be either optical, electrical, or any form of signal that corresponds to change in input signal.	Un capteur est défini comme un dispositif ou un module qui permet de détecter les modifications de la quantité physique comme la pression, la force ou la quantité électrique comme le courant ou toute autre forme d'énergie. Après avoir observé les modifications, le capteur envoie l'entrée détectée à un microcontrôleur ou à un microprocesseur. Enfin, un capteur produit un signal de sortie lisible, qui peut être optique, électrique ou toute forme de signal correspondant à la modification du signal d'entrée.
In any measurement system, sensors play a major role. In fact, sensors are the first element in the block diagram of measurement system, which comes in direct contact with the variables to produce a valid output.	Dans tout système de mesure, les capteurs jouent un rôle majeur. En fait, les capteurs sont le premier élément du schéma de principe du système de mesure, qui entre en contact direct avec les variables pour produire une sortie valide.