

University Hamma Lakhdar of El Oued,

Faculty of Exact Sciences

Lecture 5 in Technical English/ First Year Master Physics

- The human body is a single structure but it is made up of billions of smaller structures of four major kinds: cells, tissues, organs, and systems.
- An organ is an organization of several different kinds of tissues so arranged that together they can perform a special function.
- A system is an organization of varying numbers and kinds of organs so arranged that together they can perform complex functions for the body.
- Ten major systems include the skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and the reproductive system.
- Body functions are the physiological or psychological functions of body systems. Survival of the body depends on the body's maintaining or restoring homeostasis, a state of relative constancy, of its internal environment.
- Human life process includes organization, metabolism, responsiveness, movements, reproduction, growth, differentiation, respiration, digestion, and excretion. All these processes work together, in fine-tuned balance, for the well-being of the individual and to maintain life.
- Life depends on certain physical factors from the environment, which include water, oxygen, nutrients, heat, and pressure.
- Useful terms for describing body parts and activities include:
 - Directional terms
 - Terms describing planes of the body
 - Terms describing body cavities.

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A nuclear reaction is a process when two atomic nuclei or subatomic particles interact to produce one or more new particles or gamma rays. Thus, a nuclear reaction must cause a transformation of at least one nuclide to another. Sometimes if a nucleus interacts with another nucleus or particle without changing the nature of any nuclide, the process is referred to as a nuclear scattering rather than a nuclear reaction. Perhaps the most notable nuclear reactions are the nuclear fusion reactions of light elements that power the energy production of stars and the Sun. Natural nuclear reactions also occur in the interaction between cosmic rays and matter.

The most notable man-controlled nuclear reaction is the fission reaction which occurs in nuclear reactors. Nuclear reactors are devices to initiate and control a nuclear chain reaction, but there are not only artificial devices. The world's first nuclear reactor operated about two billion years ago. The natural nuclear reactor formed at Oklo in Gabon, Africa, when a uranium-rich mineral deposit became flooded with groundwater that acted as a neutron moderator, and a nuclear chain reaction started. These fission reactions were sustained for hundreds of thousands of years until a chain reaction could be supported no longer. This was confirmed by the existence of isotopes of the fission-product gas xenon and by different ratios of U-235/U-238 (enrichment of natural uranium).

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Read carefully the text above and answer the questions below:

- Translate the underline words in the text to Arabic.
- Translate in Arabic the below short paragraph from the text:
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